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ORIGINAL ARTICLES.

THE NEW ENGLISH SANATORIUM FOR BRITISH PATIENTS IN SWITZERLAND: MONTANA HALL.

By T. N. KELYNACK

M.D., M.R.C.P.,

Consulting Physician, Mount Vernon Hospital; Visiting Physician, Harpenden Children's Sanatorium; Medical Adviser, National Children's Home and Orphanage, and Shaftesbury Society, etc.; Hon. Secretary, Royal Institute of Public Health; Editor *British Journal of Tuberculosis*, etc.

AND

HILARY ROCHE,

M.D., M.R.C.P.,

Tuberculosis Diseases Diploma, University of Wales; Medical Superintendent, Montana Hall Sanatorium, Switzerland.

SWITZERLAND has rightly been designated the playground of Europe, and is now generally recognized as the sanatorium of the world. To its numerous holiday stations and sports centres come visitors from all countries seeking recreation and enjoyment. And at its health resorts patients are to be found from many lands. English medical advisers have for long sent patients to Switzerland, and have taken an active part in the development of places in the high Alps where tuberculous subjects and other invalids have been restored to health. Switzerland can be readily reached from England and affords a climate which has been proved to be specially advantageous in the treatment of pulmonary and other forms of tuberculosis. The ideal natural conditions existing there are for a great part of the year not available in the British Isles. In this land of health and healing persons predisposed to tuberculosis and other affections and enfeebled by illness of various kinds may be built up into vigorous individuals. Patients with asthma and disorders in which the nervous element occupies a prominent place often gain great benefit from a course of residence at

a high mountain station in Switzerland. For cases of pulmonary tuberculosis a prolonged course of treatment under scientifically directed conditions frequently works wonders. And wisely directed sanatorium treatment at an Alpine station is found to be of the greatest benefit for tuberculous involvement of the glands, bones, joints, and other structures of the body. But to attain the best results treatment should be begun in the early stages of the disease.

During the last few years the action of sunlight, altitude, moving pure, rarefied, cool air and other climatic conditions, such as are met with in Switzerland, on growth, nutrition, blood production, excretion, and the arrest of disease processes have been scientifically investigated. It is now known that the healing influence of Nature's forces can be employed with great advantage at Swiss mountain stations. In view of recent observations and experience many opinions which formerly prevailed as to contraindications for residence at a high altitude must be revised. In the majority of cases patients may safely come direct from their own homes in England to such a mountain station as Montana without prejudice. No longer must hæmoptysis be considered a bar; indeed, many cases where pulmonary hæmorrhage is the first indication or an early sign of tuberculous disease do exceedingly well at a high level resort. If there is no serious heart involvement, anxieties regarding cardiac distress or collapse need not be raised. Many cases of pulmonary tuberculosis with catarrhal involvement of respiratory passages and lesions of the larynx are relieved and improved by the pure, rarefied, dry, stimulating air of the Alps.

While Switzerland offers exceptional benefits for the treatment of tuberculosis, it is well to remember that many other cases are greatly benefited by residence in such an elevated health resort as Montana. Particular reference may be made to patients convalescing from various forms of illness, who quickly improve. Certain anæmias, especially such as are due to malaria and other blood infections, are generally greatly advantaged. Some neurasthenic patients do well. Many delicate, tuberculously disposed children and adolescents under helio-therapeutic measures and proper sanatorium control gain much benefit.

Among Swiss mountain health stations Montana occupies a foremost place. It is situate in the Canton Valais, 5,000 feet above sea-level, and is reached from Sierre in the Rhone Valley by a mountain railway in fifty minutes. Montana has a natural position which is unrivalled, and possesses a glorious outlook from its wonderful plateau which extends along the southern slopes of the Wildstrubel. There is a magnificent view of the Rhone Valley extending practically from Brigue to Martigny, with ranges of snow-clad mountains reaching from the Simplon Massif to Mont Blanc. Opposite Montana lies the Val d'Anniviers, backed by the



FIG. 1.—MONTANA HALL, MONTANA: VIEW OF THE SOUTH AND WEST FRONTS.

The photograph gives a general view of the building as it stands overlooking the Rhone Valley and protected on the north by mountains. Rooms and resting balconies for patients are shown. The solarium is situated above the top floor.



FIG. 2.—MONTANA HALL, MONTANA: EASTWARD VIEW FROM THE FRONT OF THE SANATORIUM.

The Rhone Valley is seen to the east of Sierre extending to the Simplon Tunnel between Switzerland and Italy, with the River Rhone running through the valley. In the distance and on the right are some of the snow-covered peaks of the Valais Alps.

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Weisshorn, Zinal, Rothorn, and Combin. An hour's climb affords splendid views of the Weissmies, Mischabellhörner, Matterhorn, Dent Blanche, Pique d'Arrolla, and other famous Alpine peaks. Montana owes much to its position and picturesque situation. An ever-changing panorama of infinite beauty and endless delight exercises a profound psychological influence for good on Nature-loving patients. At all seasons of the year heliotherapy can here be practised with greater benefit than elsewhere. Air and sun-bathing at a mountain station like Montana exercise a very beneficial influence in certain cases of pulmonary tuberculosis, provided that it is carried out under the strictest medical supervision and in carefully chosen cases.

At Montana graduated exercise can be carried out under ideal conditions throughout the year. The psychological influence engendered by the bracing climatic conditions and the environment produce a beneficial psychological influence which greatly helps the patient in co-operating with his doctors and nurses.

The new village of Montana has arisen as the result of the establishment of a "curing" station on a plateau. This plateau, on which there are four lakes and extensive pine forests, provides patients with paths for level walking covering some five or six miles. The great extent of the plateau and its distance from the mountain ranges on its southern aspect prevent the "shut-in" feeling apt to be produced by residence in many mountain resorts. Montana has the highest sunshine record of all the Swiss Alpine health resorts.

Montana is only twenty hours from London and twelve hours from Paris by train. Since Sierre, the town from which runs the funicular railway to Montana, is on the main line between Paris and Milan via Lausanne, there is an excellent service of fast trains, and the journey from England is therefore quick, easy, and comfortable.

At Montana there is at all seasons of the year much to interest patients. In winter patients in whom active trouble has become arrested can engage in such a sport as skating, and in every season of the year delightful walks can be enjoyed and pleasant excursions undertaken.

There are many sanatoria in various parts of Switzerland, but at the present time there exists only one entirely under British ownership and control. It is the purpose of this article to indicate, both by printed word and by reproductions of actual photographs, the chief features of the new British sanatorium in Switzerland, Montana Hall.

Montana Hall was opened in October, 1930, for the reception of British patients. It is staffed by British doctors and nurses, and has been built and is owned by an English private company.

Montana Hall is situated in a quiet district about three-quarters of a mile walk from the village of the "curing" station of Montana. There



FIG. 3.—MONTANA HALL, MONTANA: SOUTH-WEST VIEW FROM THE SANATORIUM.

In the foreground are the forests covering the slopes below Montana. Beyond lies the valley of the Rhone. In the distance are the mountains of Valais. Mont Blanc is seen on the right.

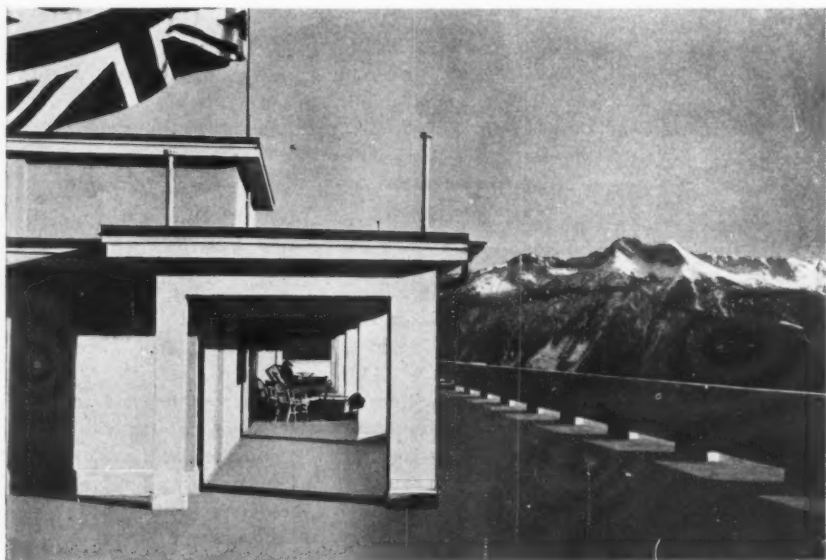


FIG. 4.—MONTANA HALL, MONTANA: THE ROOF SOLARIUM.

This shows a small section of the open part of the solarium.

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are admirable country walks in the immediate vicinity. The view from the sanatorium is one of the finest in Switzerland. To the north there are green meadowlands, then pine forests stretching up to the snow-clad slopes of the Wildstrubel range of mountains, which protect Montana from the cold north winds. On the north-west is a thickly wooded mountain, which affords valuable shelter. On the east the view is entirely open, and embraces a magnificent survey of the Rhone Valley and the adjacent mountain ranges extending above the Simplon Tunnel, which joins Switzerland and Italy. On the south side of the Rhone Valley are seen some of the highest of the Alps. In the immediate front of the sanatorium the grounds are laid out as a garden, with well-drained, level gravel paths. There is also a skating-rink available in the winter, and two putting greens for golfers to practise on in the summer.

Montana Hall has accommodation for seventy patients. It consists of four floors of bedrooms for patients, one ground floor of public rooms and offices for administrative purposes. In the basement are the servants' quarters and various rooms connected with the service of the sanatorium. The public rooms are spacious, and include a fine dining-room with a south and east aspect, a drawing-room, lounge, reading-room and library, a billiard-room, and a "clock-golf" room. Montana Hall has been built entirely of reinforced concrete, together with certain building specialities employed for the purposes of insulation against changes of temperature and the transmission of irritating sounds. The building is entirely fire-proof.

Among the principal constructional features are the magnificent roof solarium and the private balconies, which diminish in width from below upwards on each successive floor, thus providing that the maximum amount of sunshine may be obtained in each room. The solarium has a total area of 550 square yards. Part of it is enclosed on three sides and is open only on the south, and the other part is entirely open. Attached to the solarium is a pantry for the reception and service of food. The solarium affords an admirable resting-place for the patients occupying the north rooms, and is also an excellent place for patients to take walking exercise on first getting up. There is a separate kitchen wing.

There are a number of installations of special interest in Montana Hall. These include the light-signalling system, which has completely replaced the now obsolete method of employing electric bells and the broadcasting equipment, whereby wireless can be received from Great Britain and the chief cities of Europe, the gramophone music, concerts, lectures given in the sanatorium, the Church of England services held in the drawing-room, which can be transmitted to every patient in his or her own room, or on the adjacent balcony, by

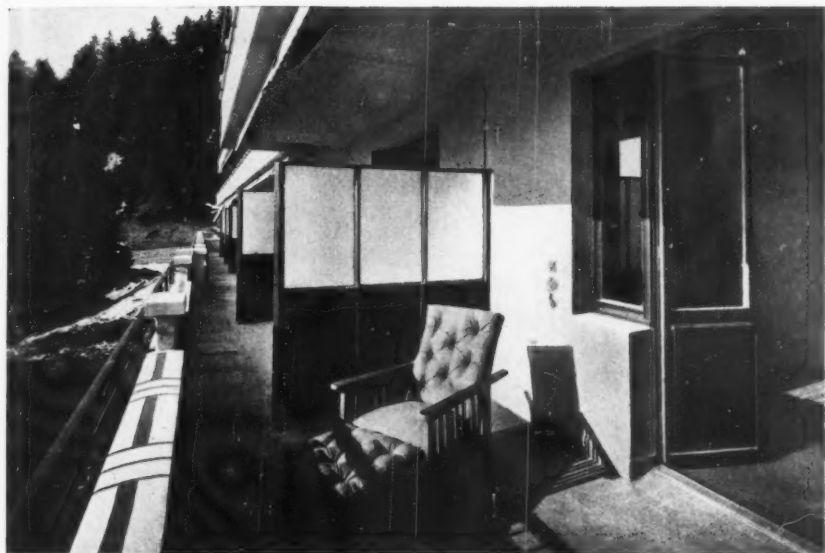


FIG. 5.—MONTANA HALL, MONTANA: FIRST FLOOR BALCONY LOOKING WEST.

The photograph shows the private balconies, with fixed partitions. The outermost sections of these partitions have been unlocked and folded back. On the wall are visible the plugs for the electric light, wireless installation, and light signals.



FIG. 6.—MONTANA HALL, MONTANA: A PATIENT'S BEDROOM IN THE SOUTH-EAST CORNER OF THE SANATORIUM.

The room is very comfortably furnished and is equipped with running hot and cold water. Through the open door are seen the mountains of Valais.

means of head-phones. There is also an excellent and extensive house telephone system, which greatly facilitates the work of the staff, and aids in the smooth running of the establishment. A large number of rooms are wired with the telephone for external communications, including England if required. For medical reasons the telephone apparatus is not supplied in patients' rooms except on very special occasions. Included in the light-signalling system, which enables the patient to call for a servant, or a nursing sister, or to give a special signal in case of emergency, is an arrangement whereby the doctor on his rounds can at once be localized and communicated with. Among other interesting installations, each of great value in its own particular sphere, are a large refrigerating plant, a well-equipped steam laundry, an appliance to soften all water employed, an automatic oil-burning equipment for the heating of all the hot water for use in the house and for the central heating. Further, there are electric, gas, and steam ovens, a passenger lift large enough to convey a bed and running from the basement to the solarium, two service lifts for the conveyance of food from the kitchen to each floor pantry and to the pantry on the solarium, and steam-sterilizing plant for the sterilization of all plate and cutlery used in the bedrooms and dining-rooms. In the basement is a steam sputum sterilizer (Phillips's model). There is a special lift for the conveyance of sputum mugs from each of the floors. No coal is employed in the house. Each private balcony is fitted with its own light and extensions of the broadcasting system and light signals.

The medical department consists of two consulting-rooms, a modern X-ray plant (with valve rectifying unit permitting of instantaneous exposures at 180 cm. distance, upright screening stand and table for examination in recumbency, Potter-Bucky diaphragm, etc.), dark room, operating theatre, laboratory, and a special room for electrical and light treatment.

In the planning and furnishing of the bedrooms particular attention has been devoted to simplicity and pleasantness of design, allowing of the maximum of attention to hygiene, and the provision of every comfort for the patients. "Bed cases" are given beds with rubber-tired wheels so that they can be wheeled noiselessly and without disturbance on to the balconies, the solarium, or to the medical department. "Up-patients" have wooden beds. In every room there is central heating, and running hot and cold water. Several rooms have their own communicating private bathrooms and w.c.s. On each floor there is a shower-bathroom, bathrooms, w.c.s, and sluish-rooms.

Montana Hall has been designed, constructed, and equipped primarily for patients suffering from tuberculosis, and affecting especially the respiratory system. Other cases of tuberculosis—glandular peritoneal, urogenital, and also those in the so-called pretuberculous

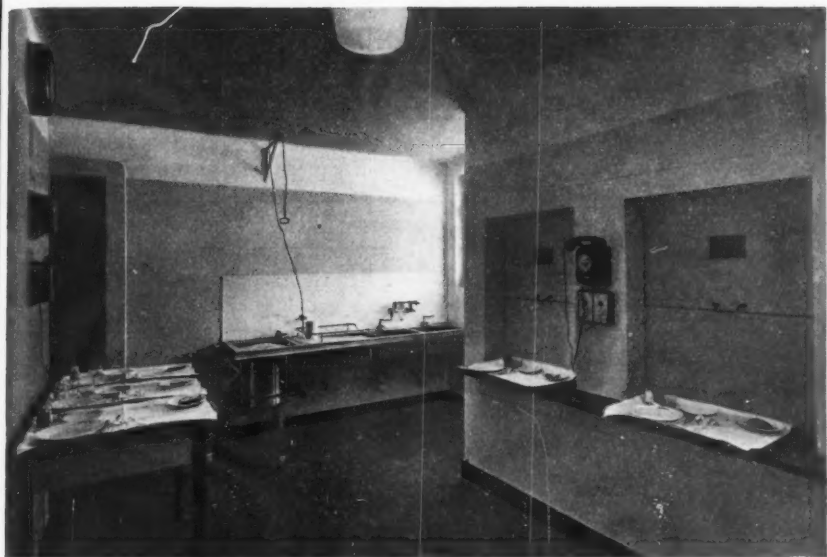


FIG. 7.—MONTANA HALL, MONTANA: A FLOOR PANTRY.

The pantry has service lifts connected with the kitchens, and is fully equipped with washing-up sinks, steam sterilizer for disinfection of patients' silver and china-ware, etc. On the wall is seen the automatic house telephone and one of the many electric clocks with which the sanatorium is provided.



FIG. 8.—MONTANA HALL, MONTANA: PART OF THE LOUNGE OF THE SANATORIUM.

The lounge is suitably furnished to meet all the needs of the patients. The open fireplace is shown on the right.

state are admitted. Cases with pulmonary disease combined with bone or joint tuberculosis are also taken. Patients suffering from asthma (many of whom are helped by residence at a high altitude), and certain cases of neurasthenia and debility of ill-defined origin are received. There is every facility for all forms of special treatment.

The inclusive terms range from seven to eleven guineas per week according to the room selected. In framing these terms the directors have aimed at avoiding all irritating "extra" charges, which are frequently quite heavy in many institutions under foreign control. The charges include: (i.) Board and residence, including light, heating, English breakfast, afternoon tea, extra milk, special diet when necessary, meals in bedroom, and baths; (ii.) medical and ordinary nursing attendance, all ordinary laboratory investigations, X-ray screening, and artificial pneumothorax.

THE VERNES RESORCINE TEST IN THE DIAGNOSIS AND PROGNOSIS OF TUBERCULOSIS.

By J. W. LOBBAN,

M.D., D.P.H.,

AND

J. SMITH,

M.D., D.SC., M.R.C.P.,

From Woodend Hospital and the City Hospital, Aberdeen.

IN 1926 Dr. Arthur Vernes published a description of a test which bears his name. Briefly, if resorcine is combined with human blood-serum, there is obtained with sera from tuberculous cases a precipitate which is not given to the same extent with sera from normal individuals, and the increased turbidity thus obtained can be measured by means of a photomètre. For the interpretation of the figures of the photometric scale Vernes (1929) has laid down the following guide: the blood from a normal subject gives a reading from 0-15, a tuberculous subject over 30; between these figures there is an intermediate zone where one may observe a normal serum giving considerable flocculation, or a tuberculous serum with slight flocculation. Necessarily these figures include certain exceptions. At the commencement of a syphilitic infection flocculation, which is short-lived and never again produced during the course of the disease, is noted. With the sera of cases of advanced cancer and of septicæmias and certain infectious diseases, marked flocculation with resorcine has been noted. Vernes (1926) holds that this sero-reaction is an indispensable control for all attempts at the specific treatment of tuberculosis, in collapse therapy, in post-sanatorium attendances at clinics or dispensaries, and in the discovery of concealed tuberculosis.

Experiences with the Vernes Test.

Jacquot and Uffoltz (1926) have described the successful clinical application of this test. Following up their work Baylis (1927) has made an extensive study of the sero-reaction. She states that three distinct impressions have been left: firstly, being a flocculation reaction the many variables of a hæmolytic complement fixation system are eliminated, and as it is a precise and mechanically controlled test, employing delicately adjusted apparatus, the factor of the personal element is almost negligible; secondly, the results of the findings are recorded in such a manner that they are clearly and accurately presented; thirdly, the reagent used is a non-specific one, consisting of

a pure chemical substance, rather than the growth of tubercle bacilli, in which each of a series of harvestings may be subject to variations due to differences in infusions of broth, and in the strains of micro-organisms. In a further communication Baylis (1928) emphasizes the value of the test in diagnosis and prognosis of tuberculosis. She points out that, while non-specific for tuberculosis in a bacteriological sense, it is an extremely precise and delicate test, superior to other serological tests, and that it is a valuable guide in the treatment of tuberculous cases.

Peyrot (1927) and Leger (1927) emphasize the value of the Vernes sero-reaction in the diagnosis and prognosis of tuberculosis. Goiffon and Pretet (1927) have shown that, in their series of cases of pulmonary tuberculosis, patients show readings of 52 to 153, and cases of extra-pulmonary tuberculosis readings below 30. Tardieu (1927) states that its value warrants it being used as a measure for the diagnosis and prognosis of tuberculosis. Gernez and Breton (1928) point out that in cases of pulmonary tuberculosis which were febrile and ill they obtained readings above 30 in 98 per cent. of cases; in pulmonary tuberculosis cases which were afebrile readings above 30 were obtained in 73.8 per cent.; in cases of cured tuberculosis the readings were found to be below 30 in 91 per cent. of cases.

Breton and Ingebrans (1928), Tilmant (1929), Baylis (1929), Rubino (1929), Leger (1929), and Visani (1929) have described the advantages of this sero-reaction in diagnosis and prognosis of tuberculosis, and emphasize the fact that it is preferable to other serological tests and to complement fixation and Von Pirquet tests. Valls and Girardi (1929) observed a parallel between the curve of the serological readings and the evolution of the lesions, and accordingly considered it valuable in prognosis. Jordan (1929) examined the sera obtained from cases of definite tuberculosis, from cases of questionable tuberculosis, and from cases which showed no signs of the disease. She found that with certain exceptions high readings were obtained in cases with definite disease and low readings in normal individuals. The number of personal observations, however, were too small to draw definite conclusions. Dickson (1930) in a recent communication states that the Vernes sero-reaction appears to be very promising and the results interesting. He considers it the best laboratory aid to diagnosis yet devised. Ralph and Davies (1930) examined 200 specimens of sera obtained from sanatorium cases of tuberculosis, 150 sera obtained from patients suffering from other diseases, and 25 sera from normal individuals. They concluded that the Vernes test cannot be regarded as specific for tuberculosis, its chief diagnostic value being that a figure below 30 contra-indicates active tuberculosis. The results, however, are very valuable in prognosis and as a guide to treatment.

The Vernes Test : Methods.

For the actual test the procedure adopted was as follows : not less than 10 c.c. of blood was collected by veno puncture using venules, the blood being taken three hours after the previous meal. The tube was closed and placed in the refrigerator over-night, and after refrigeration the serum was decanted and freed from cells by centrifuging at high speed.

Two tubes were set up for each serum, one to act as a check against the other, 0.6 c.c. of serum being placed in each tube. The procedure for the first reading was to place 0.6 c.c. of the resorcine reagent (1.25 per cent in aqueous solution) into the tube containing the serum. The tube was then inverted several times to ensure a thorough mixture, and the liquid transferred to the chamber of the photomètre for the estimation of its absorption of light. This reading was made at once after the addition of the reagent with the surcharges of the photomètre at O/A. The liquid was then returned to its respective tube, and the tube closed with a rubber stopper. A similar procedure was carried out with the second tube, and these first readings were recorded. The tubes were then incubated for four hours in a water-bath at a constant temperature of 20° C. At the end of the incubation period it was ascertained whether the photomètre was "reading" with the surcharges at O/A at the exact figure it recorded at the first or control reading, thus assuring perfect adjustment. If the adjustment was not the same and a different figure was recorded the difference obtained was used in the final calculation. The liquid was then transferred from the incubated tube to the chamber of the photomètre and re-read for the degrees of absorption of light. To interpret the test, the figure obtained in the first reading was subtracted from the figure obtained in the second reading after incubation. The difference between these two readings represented the degree of flocculation caused in the reaction between the reagent and the serum, and represents milligrams of precipitate per c.c. of liquid.

The Vernes Test : Results.

The blood-serum from a series of sixty-four cases of tuberculosis was examined at fortnightly intervals during their stay in hospital, a total number of 317 tests being performed. This series was composed of thirty-six pulmonary cases and twenty-eight non-pulmonary. In addition for control purposes blood-serum was obtained during the acute and convalescent stages of fifteen cases of scarlet fever and seventeen cases of diphtheria.

Discussion of Results : Pulmonary Cases.

The Vernes readings are given in detail in Table I. In sixteen cases of the series showing active and advanced disease the Vernes

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readings were above 30 during the whole course of the tests except in two cases (Nos. 36 and 37), where for some reason there was a sudden drop in one reading to below 30, and this was followed by a rise over 30 again.

TABLE I.: INDICATING RESULTS OF VERNES TEST IN CASES OF PULMONARY TUBERCULOSIS.

No.	Date of First Test.	Results of Vernes Tests.	Date of Last Test.
29	5.11.29	71, 85, 27, 84, 65	23.1.30
30	"	71, 118, 100, 82, 39	"
31	"	88, 87, 47, 28	"
32	"	45, 35, 77, 47	8.1.30
33	"	30, 6	28.11.29
34	"	100, 47	"
35	"	51, 62, 52, 50, 25	28.1.30
36	"	96, 75, 12, 72, 70, 61	29.2.30
37	"	42, 22, 109, 88, 41, 76	19.2.30
38	"	10, 12, 14, 18, 92, 15	"
39	"	28, 18, 14, 131, 46	28.1.30
40	"	37, 22, 64, 63, 39, 20	19.2.30
41	"	55, 23, 47, 49, 43, 14	"
42	"	37, 18, 15, 20, 19	28.1.30
43	12.11.29	46, 91, 134, 57, 68, 62	25.2.30
44	"	44, 34, 57, 22	15.1.30
45	"	56, 72, 78, 87, 68, 88	25.2.30
46	"	34, 26, 20, 13, 23	"
47	"	36, 9, 66, 36, 17	15.2.30
48	"	103, 85, 51, 63	15.1.30
49	"	108, 66, 127, 61, 62	25.2.30
50	"	45, 27, 23, 18, 20, 22	18.2.30
51	"	63, 59, 48, 42, 118, 71	25.2.30
52	"	35, 50, 22, 18, 47, 25	19.2.30
53	"	48, 25, 27, 22, 91, 18	"
54	"	16, 8, 7, 9, 6, 6	"
55	"	65, 44, 49	"
56	"	25, 75, 61, 31, 38, 39	"
57	"	102, 51, 129, 58, 66	"
58	"	30, 19	3.12.29
59	"	4, 8, 57	24.12.29
60	"	43, 135, 35, 63, 23, 20	19.2.30
61	"	116, 142, 80, 55	15.1.30
62	"	63, 57, 81, 57, 93, 80	25.2.30
63	"	22, 52, 13, 17, 13, 15	19.2.30
64	"	43, 50, 48, 14	"

In fourteen cases showing early or only a moderate amount of pulmonary tuberculosis the initial readings were above 30, but later tests gave results below this figure. In these cases, when the sputum became less abundant and even negative for tubercle bacilli, when the weight increased and the toxic symptoms disappeared, the Vernes figures showed a corresponding improvement. Two of the cases with initial readings over 30, and showing a decrease in their readings corresponding with their improved physical condition, were cases of

pleurisy with effusion. Four cases of healed tuberculosis showed initial readings below 30; one of these cases, a thoracoplasty, had an exacerbation with a bronchitis and increase in sputum, and the Vernes reading rose from 14 to 131.

Discussion of Results: Non-Pulmonary Series.

In thirteen of the series of twenty-eight non-pulmonary cases of tuberculosis the readings (Table II.) were above 30, and these cases, with one exception (Case 9), showed extensive destruction of bony

TABLE II.: INDICATING RESULTS OF VERNES TEST IN CASES OF EXTRA-PULMONARY TUBERCULOSIS.

No.	Type of Case.	Date of First Test.	Results of Vernes Tests.	Date of Last Test.
1	Spinal ...	28.10.29	36, 52, 58, 67, 23, 37	12.2.30
2	Abdominal Glands	"	9, 28	19.11.29
3	"	"	11, 5, 24, 26	1.1.30
4	Hip Joint ...	"	6, 7, 11, 57, 20, 30	12.2.30
5	"	"	93, 52, 105, 156, 107, 84	"
6	Spinal Caries ...	"	22, 27, 30, 42, 21, 15	"
7	"	"	8, 17, 14, 22, 18, 5	"
8	"	"	41, 110, 117, 111, 73, 100	"
9	Hip Joint ...	"	36, 37, 80, 80, 39, 82	"
10	"	"	18, 14, 6, 17, 15, 9	"
11	"	"	70, 38, 61, 62, 35, 86	"
12	Genito-urinary ...	"	130, 86, 76	10.12.29
13	Spinal Caries ...	"	3, 24, 23, 24, 27, 20	12.2.30
14	Hip Joint ...	"	38, 116, 125, 115, 29, 67	"
15	Pelvis ...	"	6, 55, 51, 61, 60, 44	"
16	Genito-urinary ...	"	18, 43, 32, 35, 57	"
17	Hip Joint ...	"	125, 96, 80, 49, 35, 23	"
18	"	"	148, 138	19.11.29
19	"	"	73, 49, 35, 75, 55	12.2.30
20	Elbow Joint ...	"	18, 58, 18, 10, 23, 24	"
21	Hip Joint ...	5.11.29	15, 18, 21, 8, 25	19.2.30
22	Os calcis ...	"	29, 16, 28, 23	"
23	Hip Joint ...	"	4, 5	28.11.29
24	"	"	104, 46, 52, 101, 105	12.2.30
25	Axillary Glands...	"	77, 44, 24, 23	8.1.30
26	Spinal Caries ...	"	25, 10, 21, 28, 20, 20	19.2.30
27	Abdominal Glands	12.11.29	31, 47, 101, 110, 62	25.2.30
28	Hip Joint ...	10.12.29	30, 35, 20, 31	"

tissue with abscess formation. In two cases (Nos. 17 and 25) the initial readings were above 30, but as the disease became quiescent the readings dropped to 30 or below. In nine cases the Vernes readings were persistently below 30, and these were either early cases showing little bone destruction with no abscess formation or healed cases. In three cases (Nos. 4, 6, 20) there was one reading over 30, the remainder being below 30, the rise above 30 coinciding with a temporary exacerbation of symptoms. In twenty-six of the twenty-eight cases of the

series the Vernes readings rose or fell according to the clinical course of the disease, while in two cases (Nos. 9 and 11) there was no agreement between the Vernes readings and the progress or otherwise of the case.

The Results of a Control Series.

For the purpose of comparison and control blood-serum was obtained from cases of scarlet fever and diphtheria. In the cases of scarlet fever the first specimen of blood was taken when the eruption was still present, before the patient was apyrexial, and while the throat was still inflamed. In the diphtheria cases the blood was first taken immediately after admission, when the throat showed membrane and before specific antitoxin was given. The second specimens of blood were taken when the patients were convalescing, and the results of the various tests are given in Table III.

TABLE III.: INDICATING RESULTS OF VERNES READINGS IN ACUTE FEVERS.

<i>Scarlet Fever Cases</i>			<i>Diphtheria Cases.</i>		
<i>Case No.</i>	<i>Result of First Test.</i>	<i>Result of Second Test.</i>	<i>Case No.</i>	<i>Result of First Test.</i>	<i>Result of Second Test.</i>
1	48	26	1	30	13
2	93	37	2	15	9
3	25	14	3	49	9
4	44	6	4	30	15
5	40	18	5	79	7
6	28	13	6	56	8
7	41	48	7	45	25
8	53	32	8	22	7
9	54	108	9	28	16
10	97	20	10	84	4
12	42	10	11	55	4
13	27	32	12	49	14
14	21	12	13	91	15
15	22	38	15	30	21
			16	54	20
			17	51	12

The first specimens of blood-serum from ten scarlet fever cases gave readings above 30, and an examination of the case sheet showed that these patients had had a fairly severe attack of the disease. Five cases with a mild attack of the disease showed first readings below 30. When the sera were re-examined during convalescence all but four cases showed a decrease in the figures obtained. In only one case (No. 9) was there any marked increase, the reading in this case being 54 at the first examination and 108 at the second. This result, however, could

be explained by the fact that the second specimen was taken only two days after the subsidence of the fever.

In the diphtheria cases eleven moderately severe cases showed readings over 20, and six mild cases gave readings under this figure at the first test. Here, however, all cases showed normal values when the second specimens were examined.

Summary and General Conclusions.

1. The findings in the series of tuberculous cases and in the control series show that the test cannot be regarded as specific for tuberculosis.

2. In sixty-four cases of pulmonary and extra-pulmonary cases of tuberculosis the serial tests corresponded with the clinical course of the disease in 59, and hence a progressive decline in the figures obtained was found to be of good prognostic value.

3. The sera from healed cases of tuberculosis whether pulmonary or non-pulmonary show readings below 30, and a Vernes reading below 30 is a good measure of the inactivity of the lesion.

4. Non-pulmonary cases of tuberculosis generally show Vernes readings below those obtained in pulmonary cases. In cases of bone disease in which there is extensive destruction of the tissue the readings are, however, fairly high.

5. The results obtained in cases of scarlet fever and diphtheria indicate that the amount of flocculation obtained varies with the stage and degree of severity of the illness.

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THE VALUE OF LIPIODOL IN THE INVESTIGATION OF INTRATHORACIC CONDITIONS.

By A. LISLE-PUNCH,

M.B. (LOND.), M.R.C.P. (ENG.),

Senior Physician, Royal Northern Hospital and Physician to the Brompton Hospital for consumption and diseases of the chest.

LIPIODOL is a combination of iodine in poppyseed oil containing 40 per cent. by weight of iodine. It is of high specific gravity, opaque to the X rays, and non-irritating to the bronchial mucous membrane. After injection into the trachea it gravitates into the bronchi and their smallest ramifications, and a picture of the whole of the bronchial tree can thus be obtained by the X rays. Moreover, owing to the firm combination of the iodine and the oil, none of the usual effects of iodism are observed unless it be swallowed and acted upon by the acid of the gastric secretion. After its injection a certain amount is coughed up, the rest being absorbed in the lung. The rate at which it is absorbed varies according to circumstances that are not properly understood. In the majority of cases it has all been absorbed in the course of a week or two. In exceptional cases some may remain in the lung for many months. Even when retained for as long as this no deleterious effects have been observed.

Technique of Lipiodol Injection.

There are various methods by which the oil may be injected into the bronchial tree. It may be done by injection through a bronchoscope; or by passing the nozzle of a curved syringe through the vocal cords (transglottic method); or through a catheter passed through the vocal cords; or by placing the oil at the base of the tongue and getting the patient to breathe rapidly. The method which I employ personally, and which I have found to be the surest one and to be applicable in the majority of cases, is by injecting the lipiodol through the crico-thyroid membrane. The skin over the crico-thyroid membrane is anæsthetized with 2 per cent. solution of novocaine. Ten minims of a 5 per cent. cocaine are then squirted into the trachea through the membrane and finally the oil injected with a special syringe. The oil is made to gravitate into the lung or lobe of the lung that it is desired to investigate by tilting the patient.

The Use of Lipiodol in Diagnosis.

The greatest value that this method of investigation has is, undoubtedly, in the detection of bronchiectasis; but there are certain other conditions, which will be considered briefly, in which lipiodol is very helpful in arriving at a diagnosis.

Bronchiectasis.—The injection of lipiodol into a lung which is the seat of saccular bronchiectasis will cause the formation of pools of the oil in the dilated portion of the bronchi. Where there is a fusiform dilatation the oil will adhere to the walls of the dilatations and give a typical appearance in the X-ray picture. Lipiodol will often demonstrate the presence of some dilatation of the bronchi in cases in which none of the classical signs or symptoms are present. We may, for instance, detect a little impairment of percussion note, somewhat weak breath sounds and some persistent râles at the base of one lung, and the question arises as to the presence or absence of some bronchiectasis. The ordinary X ray may be inconclusive. The injection of lipiodol will decide the point definitely.

Moreover, we can by this method determine the type and extent of the disease, and also show whether there is any involvement of the other lung—a point that is very important in deciding on the treatment that should be adopted.

Tuberculosis.—It is as a rule wise to avoid injecting lipiodol into tuberculous lungs, certainly in the presence of any severe degree of pyrexia. There is a slight risk of increasing the spread of the disease. The risk, however, in the absence of pyrexia is slight, and when it is important to arrive at a diagnosis in an obscure case this method can usefully be employed. In cases of repeated small hæmoptyses, with no tubercle bacilli in the sputum, and where no other evidence of tuberculosis is present, lipiodol should be injected. This method of investigation has revealed the fact that early bronchiectasis, giving rise to very few abnormal physical signs in the chest, is a very frequent cause of repeated small hæmoptyses. This method of investigation is particularly useful in cases in which we are unable to determine for certain by other methods whether a diseased area of the lung is bronchiectatic or tuberculous. This is particularly necessary when the diseased area of the lung is in the upper lobe. Upper lobe bronchiectasis is not very rare, and in cases in which there is disease in this area, with repeatedly negative sputum examinations lipiodol injection will determine whether the condition is tuberculous or bronchiectatic. In the former case dilatations which are clearly continuous with and part of the bronchi will be seen filled with the opaque medium. In the latter, even if the medium enters into the cavities, which it often does not, the cavities thus revealed will be seen to be quite distinct from the bronchi.

Abscess of the Lung.—Injection of lipiodol will help to determine

whether an opacity seen in the ordinary X-ray picture is due to an abscess or to tuberculosis. Cases in which the diagnosis rests between these two conditions are not uncommon. In order for the oil to enter into a cavity there must be free communication between it and the bronchus. Lipiodol seldom, if ever, enters into an abscess, even when the patient is coughing up pus, the communication between the cavity and the bronchus not being sufficiently free owing to granulation tissue or œdema.

Localized Pneumothorax.—It is sometimes difficult to distinguish between a localized pneumothorax and a superficial cavity in the lung. Lipiodol may be of assistance in determining this point.

Intrathoracic Tumour.—Lipiodol injections are of the greatest value in determining several points in elucidating the diagnosis of suspected intrathoracic tumours. In the first the oil will not enter into a shadow seen in the X ray if that shadow is due to a tumour itself. Secondly, we can determine the relationship of any such shadow to the main bronchi. Moreover, we can thus demonstrate any partial obstruction or complete occlusion of the larger bronchi. Complete occlusion of a large bronchus, in the absence of a foreign body, is very suggestive of a primary carcinoma in the bronchus. This form of carcinoma is the commonest type of primary intrathoracic neoplasm. The condition of the bronchi and lung beyond any such obstruction can also be made evident. In the case of partial obstruction the distal bronchi may show some dilatation. Where there is complete obstruction of a main bronchus due to a primary carcinoma, the bronchial tube is seen to terminate abruptly about an inch and a half beyond the bifurcation of the trachea, and no lipiodol permeates into the lung beyond. The lung distal to the obstruction is collapsed, and presents a diffuse opacity in the X-ray picture.

Other Conditions in which Lipiodol is Helpful.—When the whole of one side of the chest is opaque to the X rays in the absence of fluid, such a condition may be due to thickened pleura, collapse of the lung due to obstruction of a bronchus, fibrosis of the lung, etc. Injection of lipiodol will determine the state of the bronchi, and so help to arrive at a diagnosis.

In cases of broncho-cutaneous fistulæ lipiodol will assist in showing the state of the subjacent lung.

The extent and direction of a chronic empyema may be determined, and the presence of a pleuro-pulmonary fistula may be demonstrated, by the injection of lipiodol through the chest wall.

The above is a brief summary of the various conditions in which the writer has found this method of investigation of the greatest value.

SYMPTOMLESS SPONTANEOUS PNEUMOTHORAX.

By J. REGINALD BEAL,

M.D., D.P.H., M.R.C.S.,

Assistant Tuberculosis Officer, City of Manchester.

THE condition of pneumothorax was first fully described by Laennec¹ in 1831, although Itard² in 1803 had recognized the lesion and drawn attention to its connection with the tuberculous lung. Since this time the literature on the subject has steadily increased in volume, especially since the inception of artificial pneumothorax by Forlanni of Pavia in 1894, and John B. Murphy of Chicago in 1898.

I do not propose to deal with artificial pneumothorax in this paper, but rather with the type of spontaneous pneumothorax that occurs in the case of fairly advanced pulmonary tuberculosis, where the classical symptoms are not present and where the complication is of grave significance. With this purpose in view I am recording a series of six cases of symptomless spontaneous pneumothorax which have come under my notice during the past few months.

The frequency of occurrence of spontaneous pneumothorax varies. Powell³ showed that in a series of post-mortems performed at the Brompton Hospital during 1900-1903 the incidence of spontaneous pneumothorax was 6·4 per cent. Fishberg⁴ states that the incidence at the Montefiore Hospital was about 3 per cent. These figures would vary, since they are most probably influenced by the type of case observed; the presence of adhesions in old chronic cases would act as a safeguard in the prevention of this complication.

From the statistics available it appears that the condition is more frequent in males than females, and Fishberg,⁵ quoting Nikoloski, gives the incidence in a series of cases as 75 males to 14 females. Of the 6 cases I have observed, 4 were males and 2 were females, and although the number is too small to be of any statistical value it would appear to bear out the previously expressed views.

Signs and Symptoms.

The usually accepted description of the occurrence of a spontaneous pneumothorax is that the onset is sudden, coming on after exertion, or after no effort at all. The patient, from being quite comfortable, is seized with an acute pain in the chest, and becomes actually ill; breathing becomes difficult, and all the symptoms of shock are exhibited.

In the 6 cases under review there was no history of any exertion or sudden strain, and the lesion was discovered in the course of the routine examination of patients known to be suffering from pulmonary tuberculosis. In none of these cases was there elicited a history of pain in the chest or dyspnoea, the patients being unaware that anything untoward had happened.

In 5 cases the percussion note was impaired over the area of the pneumothorax, this being due to pleural thickening and adherent pleura. In case No. 4 the note was hyper-resonant and the breath sounds were absent, but in the remaining cases breath sounds were of a soft, distant, amphoric type. Metallic râles were present in 4 cases.

Fluid was present in cases 3, 4 and 5, giving rise to a definite splash. Fluid was withdrawn from case No. 3, and on bacteriological examination tubercle bacilli were found.

Cardiac displacement occurred in cases 3 and 5 on the opposite side to the pneumothorax, but this was only about 1 inch from the normal position. In case No. 4 the heart was unchanged in position, being drawn over to the left side.

The diagnosis of spontaneous pneumothorax was confirmed by radiographic examination in 5 cases, the other patient being too ill for screening.

Case 1.—Male, age 45. Sputum positive. Stage III. No symptoms of spontaneous pneumothorax. Right lung: impaired note over the upper and middle zones, prolonged breath sounds, occasional crepitations. Left lung: impaired note anteriorly and posteriorly, breath sounds of amphoric type upper and middle zones, metallic râles. X-ray: left dome of diaphragm immobile, pleural thickening at the base of the left lung. Partial pneumothorax over the upper half of the lung. Right lung: infiltration of all zones.

Case 2.—Male, age 19. Sputum positive. Stage III. No symptoms of spontaneous pneumothorax. Right lung: signs of infiltration of upper and middle zones. Left lung: impaired note over upper and middle zones, breath sounds of distant amphoric type, metallic râles. X-ray: Left lung showed collapse and a loculated pneumothorax with adhesions. Right lung: infiltration of all zones.

Case 3.—Male, age 38. Sputum positive. Stage III. No symptoms of spontaneous pneumothorax. Right lung: poor movement, note hyperresonant, breath sounds absent, no moist sounds, splash present and signs of fluid. Left lung: impaired note at apex. Heart displaced 1 inch outside the mid-clavicular line to the left. X-ray: paradoxical movements of the right side of diaphragm. Right lung was collapsed and fluid was present. Heart displaced to the left. Mottling in the upper zone of the left lung.

Case 4.—Male, age 23. Sputum positive. Stage III. No symptoms of spontaneous pneumothorax. Right lung: impaired note upper and middle zones, breath sounds harsh and prolonged, crepitations present. Left lung: dulness over the upper zone with distant amphoric breath sounds and metallic râles, signs of fluid at the base associated with

splash. Heart pulled over to the left. X-ray: infiltration and cavitation right lung. Pneumothorax with fluid in the left lung.

Case 5.—Female, age 9. Sputum negative. No symptoms of spontaneous pneumothorax. Right lung: impaired note at the apex, breath sounds harsh, occasional crepitations and signs of generalized bronchitis. Left lung: impairment of note at the apex with distant amphoric breath sounds, fluid, associated with splash, reaching to sixth interspace. X-ray: collapsed left lung with poor air entry into the upper zone, fluid present. Right lung showed increase of root shadows. Heart displaced, the right border being 1 inch from the right edge of the sternum.

Case 6.—Female, age 22. Sputum positive. Stage III. No symptoms of spontaneous pneumothorax. Right lung: impaired note at apex, breath sounds of amphoric type associated with metallic râles. Left lung: impaired note at the apex, bronchial breath sounds, whispering pectoriloquy and crepitations.

This patient was too ill for X-ray examination when the above signs were present, but a previous X-ray showed disease affecting the right upper and middle zones and left upper lobe.

Commentary.

It would appear from this series of cases that the condition of symptomless pneumothorax, or, as termed by Fishberg,⁶ "latent pneumothorax," is probably more common than it would seem to be, and if looked for I feel sure the physical signs would reveal this to be the case.

The reasons I would advance for the silent onset of this condition are:

1. In view of there being a fair amount of lung tissue destroyed already, the occurrence of a spontaneous pneumothorax would not materially affect the effective lung tissue remaining.
2. The amount of lung collapsed in chronic cases will be limited by the presence of adhesions and fibrosis, and so a massive collapse, with displacement of the mediastinum, does not occur.
3. The pneumothorax at the onset affected a small portion of lung only, and tended to increase slowly. A sudden collapse of the lung did not occur in any one case.
4. There was only a slight degree of cardiac displacement in two cases. This was gradual, and would account for the absence of cardiac embarrassment and consequent dyspnoea.

I am indebted to Dr. D. P. Sutherland for permission to publish these cases.

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CRITICAL SURVEY.

THE BACILLUS CALMETTE-GUÉRIN (B.C.G.).

BY MOTI. MALKANI,

Haffkine Institute, Parel, Bombay (India).

Introduction.

A CONSIDERABLE amount of literature and a great deal of controversy have, in recent years, gathered round the *Bacillus Calmette-Guérin* (B.C.G.) regarding its employment as a prophylactic agent against tuberculosis in human beings and cattle. A virulent *bovine tubercle bacillus* when isolated about a quarter of a century ago, it had, according to the original statements of Calmette,⁷ become absolutely avirulent and lacked the power to produce any specific changes, owing to prolonged cultivation on bile-potato medium. Further, whether ingested or injected, it was carried to the regional lymph nodes, where it entered into a sort of symbiosis with the cells calling forth no demonstrable tissue reaction. On subsequent observations, however, Calmette modified his statement, his present stand being that B.C.G. is a really attenuated vaccine in Pasteur's sense of the term, having fixed, unmodifiable characteristics; that it may produce follicular lesions which heal without leaving any trace behind—such lesions, however, not being reinoculable; and lastly, that its oral administration in young infants and animals within the first ten days of life results in much greater absorption from the intestinal canal and confers a great resistance throughout childhood against a subsequent virulent familial infection.¹¹

Three important considerations arise in connection with this vaccine, viz.: (a) its innocuity; (b) its penetrability through the intestinal mucosa; and (c) its power to protect against a subsequent virulent infection.

The Case for B.C.G.

Calmette himself, aided by his associates, has, by numerous experiments, sought to justify the claims of B.C.G. as a suitable prophylactic agent against tuberculosis. Kraus, Ascoli, Sanarelli, Silberschmidt, Aldershoff, Lyle Cummins, William Park, Schroeder, Malvoz, Tzechnovitzer, Bruno Lange, Kirchner, Gerlach, Stanley Griffith, Elbert, Gelberg and Zoukerman, Nasta and Catzap, George Blanc and Chagas^{9, 10, 11}, have confirmed Calmette's observations with regard to its innocuity. Tzechnovitzer⁷⁰ finds it avirulent, showing no increase in virulence, giving a definite resistance to vaccinated cattle, and being

harmless for infants. Lange and Clauberg⁴¹ find it innocuous in guinea-pigs, and Kühn³⁸ and Okell and Parish⁵² could neither produce generalized lesions nor raise its virulence. Jensen, Mørch and Ørskov³⁰ find it innocuous and showing no increase in virulence; and according to Remlinger and Bailly,⁶¹ not only is it avirulent but also effective as a vaccine when orally administered to young guinea-pigs. King and Park³³ find that it gives an appreciable immunity in guinea-pigs, and Guérin, Richart, and Boissière²⁵ and Rankin⁶⁰ have been able to confer immunity with it on cattle. Wilbert⁷⁶ reports considerable immunity in monkeys after B.C.G. vaccination, and, contrary to their earlier observations in guinea-pigs, Gerlach and Kraus^{19, 37, 20} now testify to its harmlessness and conclude from their experiments on monkeys that as a prophylactic agent, B.C.G. merits very serious consideration. Ciuca, Francke, and Vitner-Rosenthal¹⁷ find B.C.G. vaccination harmless, and Webb⁷⁴ is of opinion that it should be administered to infants born of parents with open tuberculosis. The observations of Bernard,³ Biraud,⁴ Blanc,⁵ Cantacuzene,¹⁴ Iakhnis,²⁸ Keller,³² Malvos and Van Beneden,⁴⁷ Moine,⁴⁸ Ott,⁵³ Rougebief,⁶⁴ and Weill-Halle and Turpin,⁷⁵ on the whole, lend support to Calmette's claims both as regards its innocuity and efficiency in children.

The Case against B.C.G.

The results of many other investigators, however, markedly differ from those mentioned above. Broadly speaking, their observations on B.C.G. testify neither to its innocuity nor to its immunizing property—more or less. Watson,⁷³ on the basis of his prolonged observations in small laboratory animals and cattle (which latter were made under more favourable conditions than those of Calmette and Guérin in cattle at Gruville), feels "fully warranted in considering B.C.G. vaccination as in the experimental stage, and, in respect to its innocuity and efficiency, open to question." Larson and Evans,⁴³ Schroeder and Crawford,⁶⁷ Korschun and Dwijkoff,³⁵ and Uhlenhuth, Müller and Hillenbrandt,⁷¹ find it of no value in cattle. Schroeder and Crawford⁶⁷ and Petroff and Steenken⁵⁷ could not protect B.C.G.-vaccinated guinea-pigs against a subsequent experimental infection; these investigators, besides Langer,⁴² further observed that the immunity established with B.C.G. was not greater than that conferred by heat-killed bacilli. Armengol,¹ Chiari, Nobel, and Sole,¹⁶ Galli-Valeria,¹⁸ Hutyra,²⁷ Moti, Malkani,⁴⁶ Petroff, Branch, and Steenken,⁵⁶ and Watson⁷³ noticed some of their animals dying of tuberculosis after B.C.G. inoculation. Most of these investigators, besides Korschun, Dwijkow, and Goruchownikowa,³⁶ could also raise its virulence on animal passage. King and Park³³ and Schroeder and Crawford⁶⁷ have also noticed advanced tuberculosis in some of their animals which they

attribute to causes other than B.C.G. Tzechnovitzer,⁷⁰ an advocate of B.C.G., could not confer an appreciable degree of immunity on young guinea-pigs and rabbits by its oral administration, and found that the extent of disease in immunized and control animals was much the same. No matter how they immunized guinea-pigs with B.C.G., Isabolinsky and Gitowitsch³⁹ could not protect them against subsequent infection. Bocchine⁶ could not protect rabbits with B.C.G., and the same may be said of Kirchner and Newton³⁴ regarding guinea-pigs. Lange and Lydtin,³⁹ and Lange and Wethmar,⁴⁰ experimenting on cattle, sheep, and guinea-pigs, found that B.C.G. conferred an immunity which, though definite, was quantitatively limited. They also believe that the effectiveness of per-oral administration of B.C.G. has not been definitely demonstrated and are not, therefore, sanguine about its success in infants. Lignières⁴⁴ does not consider B.C.G. to be harmless, and is of opinion that it confers but a transient immunity. Griffith²⁴ and Noblen⁵¹ could not protect B.C.G.-vaccinated monkeys against subsequent infection, and Schlossmann's⁶⁶ experiments on monkeys offer him but little hope that Calmette's aim to eradicate tuberculosis by prophylactic immunization has been achieved. Loewenstein⁴⁵ sounds a note of warning by saying that an organism which is not virulent for guinea-pig may be gravely pathogenic for man, and that its virulence may increase, especially in the young.

Chiari, Nobel, and Sole,¹⁶ Hutyra,²⁷ Kraus,³⁷ and Selter⁶⁸ are of opinion that B.C.G. confers some immunity because of its ability to cause specific changes, and that the immunity so obtained ceases when the lesions disappear.

Again, a benign, retrogressive process set up in several instances is not a characteristic peculiar to B.C.G. alone. We know from previous experience that a similar result can be obtained from other cultures of tubercle bacilli as well.

The entirely favourable* reports^{10, 13} which Calmette publishes from time to time regarding the innocuity and efficiency of B.C.G. in children are simply astonishing, and stand sharply in contrast with the statistical comments of Goetzel,²² Greenwood,²³ Petroff,⁵⁴ and Rosenfeld,⁶³ and the clinical observations and fatalities amongst B.C.G.-vaccinated children reported by Baigue,² Chenard and Ferrier,¹⁵ Girod and Debarge,²¹ Heynsius van den Burgh,²⁶ Jeudon,³¹ Munoverro,⁴⁹ Nobecourt,⁵⁰

* "The harmlessness of the vaccine may be judged from the following: In France alone 132,000 children have been vaccinated from July, 1924, to January, 1929. In no instance has a deleterious effect following the use of the vaccine been noted. The same results were observed in Roumania, where in the city of Bucharest alone 8,000 infants received the B.C.G. at birth" (*Amer. Rev. Tuberc.*, 1929, **19**, 567).

"Since 1924 more than 210,000 infants have been vaccinated in France alone. Statistics from various countries have shown that this treatment is effective against tuberculous infections of early infancy" (*Ann. de l'Institut Pasteur*, 1930, **44**, 1; *Jour. Amer. Med. Assoc.* [Abs.], 1930, **94**, 1723).

Pirquet,⁵⁸ Renault,⁶² Saye, Domingo and Miralbell,⁶⁵ Taillens,⁶⁹ and Weill-Halle and Turpin.⁷⁵ One would, at least, have expected that statistics based on fairly comparable groups would be forthcoming; that a due allowance for the hygienic and sociological measures accompanying its vaccination⁸ would be made; that in absence of autopsies, some allowance for possible errors in diagnosis of disease, other than tuberculosis, as a cause of death in the B.C.G.-vaccinated children would be made; and lastly, that a sufficient time would be allowed to elapse before a really correct estimate of it could be allowed to be formed. Unless these conditions are fulfilled, such reports are deprived of much of their scientific worth.

Permeability of the Intestinal Canal.

Calmette holds that if B.C.G. is ingested during the first ten days of life, enough of it would be absorbed through the intestinal tract to protect against a subsequent exogenous infection, and quotes, in support, the previous work of Weigert, Disse, Ehrlich, Behring, Römer, Vaillard, Boquet, Ramon, Nellis and his own¹² on the permeability of the intestinal canal. Findel,⁵⁵ Reichenbach,⁵⁵ Selter,⁵⁵ and Brown, Petroff and Pesquera,⁵⁵ on the other hand, have not been able to confirm this observation in most cases. With regard to B.C.G. itself, Pirquet,⁵⁹ Monro,⁵⁹ Bessau,⁵⁹ Czerny,⁵⁹ Pfeiffer,⁵⁹ Chiari, Nobel, and Sole,¹⁶ Selter,⁶⁸ Petroff and Steenken,⁵⁷ Iakhnis²⁸ (to a certain extent), Lange and Lydtin,³⁹ and Lange and Wethmar⁴⁰ doubt if it could be successfully employed in this manner, and they find considerable support in the very marked differences seen on a comparison between orally and parenterally vaccinated infants and animals. While allergy appears in only about 6 per cent. of orally vaccinated children,⁸ and that too irregularly, the statistics of Weill-Halle and Turpin⁷⁵ on children and of others on experimental animals show that on a parenteral administration of the very same vaccine one can demonstrate the presence of allergy in most cases. Wallgren,⁷² from his experiences in children, finds that the amount of B.C.G. absorbed by an oral route is uncertain, and he agrees with those who hold that tuberculin sensitiveness is the only evidence that the vaccination has really taken.

Summary and Conclusions.

Although much attenuated, B.C.G. still shows virulence and is capable of producing specific changes. While these changes are, in many cases, benign and retrogressive, they may, in some instances, progress to a fatal termination. Further, experimental evidence shows that on animal passage it may regain its original degree of virulence. Based on vague and debatable evidence as it is, Calmette's criticism of the adverse experimental and clinical findings is untenable.

B.C.G. confers some immunity when parenterally administered; its

duration being variable and uncertain, repeated vaccination is necessary in order to maintain even that grade of immunity. But it should be clearly understood that infection is the price paid for this immunity. Whether, therefore, such an immunity is worth the risk of infection—how slight soever that risk may be—it would be interpreted differently by different investigators who claim to have obtained equally good, if not better, results from their respective methods. At any rate, when orally administered, its chances of penetrating the intestinal mucosa and establishing an immunity appear to be slight. From a practical standpoint, then, this procedure renders B.C.G. less dangerous in its immediate effects.

Conclusions based on statistics, as we have them today, can only be regarded as premature.

Apart from the fact that one does not yet definitely know the fate that may overtake a living tubercle bacillus during its residence in the host, under varying conditions of life, not one of the advocates of B.C.G. can claim that its presence in the system will rob a subsequent infection of its intrinsic virulence. The Carrier Problem will, therefore, still remain; and Calmette himself realizes the impossibility of controlling and eradicating the infection "except by vaccination of all susceptible human beings and animals." Whether or not such an end could be achieved, and that too with a vaccine whose innocuity is still a matter of serious dispute, and whose immunizing value is limited, more so, on account of its oral administration, time alone will show. Meanwhile, one cannot, judging from past experiences, share the optimism of those who feel that in B.C.G. at last we have a means of satisfactorily solving the problem of tuberculosis.

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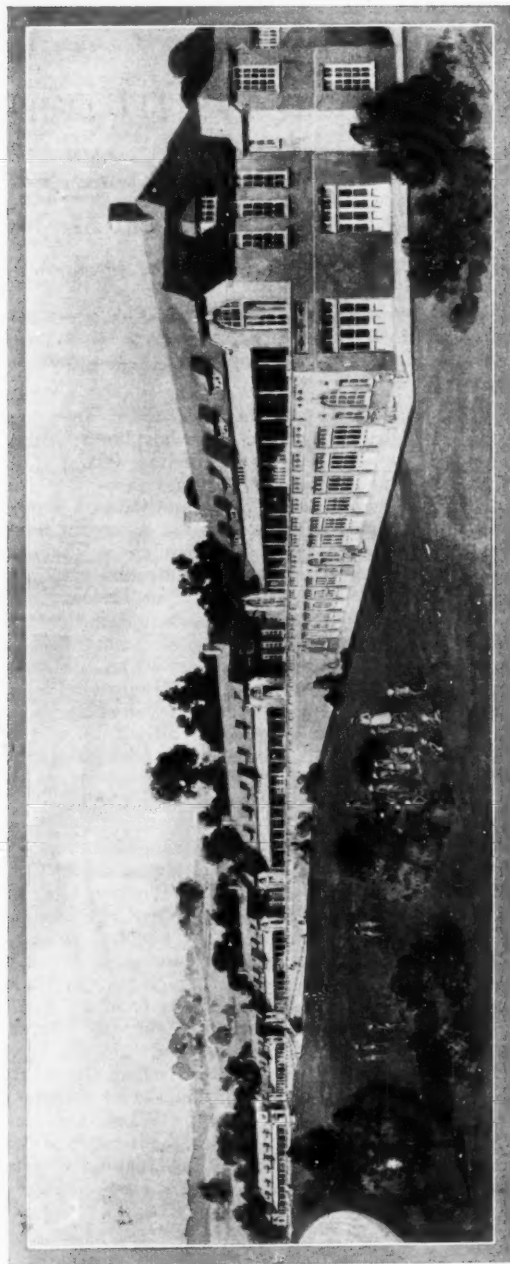
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ASSOCIATIONS AND INSTITUTIONS.

LORD MAYOR TRELOAR CRIPPLES' HOSPITAL AND COLLEGE.

THE Lord Mayor Treloar Cripples' Hospital and College through the last twenty-two years has accomplished notable service for handicapped children, many being sufferers from tuberculosis. This great institution is now planning an important extension, and Mr. H. B. Harper, J.P., from the London office at 25, Ely Place, E.C. 1, has sent us the following announcement :

The institution was founded by the late Sir William Treloar when he was Lord Mayor of London in 1906-07. The hospital at Alton was opened in 1908, and the seaside branch at Hayling Island in 1919. Originally the institution was intended to accommodate 200 children suffering from tuberculous disease of the bones and joints. There are now 355 children under treatment in the hospital at Alton and Hayling Island, whilst fifty crippled lads are under training in the college. The great aim, and the true aim, of every such institution is to help the sufferers to help themselves. That the Lord Mayor Treloar Cripples' Hospital and College effectively carries out its mission is proved beyond doubt, and for over twenty-one years has been transforming little cripples into strong, healthy, useful citizens. From the start the medical work has been under the direction of Sir Henry Gauvain, and has thus earned a world-wide reputation for conservative treatment of surgical tuberculosis under open-air hospital conditions. Light treatment has always been a feature, and the Artificial Light Department is one of the most varied in the country. Plastic operations on healed cases of lupus have been performed by Sir Harold Gillies, the consulting plastic surgeon. Of recent years a number of orthopaedic cases have been admitted to the hospital, and special arrangements have been made with the Hampshire County Council, Portsmouth City Council, Southampton Borough Council, and Aldershot Education Committee, for the treatment of all crippled children of school age within the respective areas. Treatment is afforded in the hospital, whilst convenient clinics have been established for after-care supervision. The scheme has proved remarkably successful. Mr. H. A. T. Fairbank is consulting orthopaedic surgeon, and Mr. E. A. Lindsay, assistant. Also in recent years a consulting ophthalmic surgeon (Mr. Duke Elder) and a consulting ear and throat surgeon (Mr. T. H. Just) have been added to the medical staff. The trustees have always adopted the attitude of providing all that science and medical skill can devise for the treatment of the children. When the hospital was opened in 1908 the existing wards were the timber structures remaining from the Princess Louise Military Hospital for troops returning from the South African War. Whilst these buildings have



PROJECTED NEW WARDS OF THE LORD MAYOR TRELOAR CRIPPLES' HOSPITAL AT ALTON.

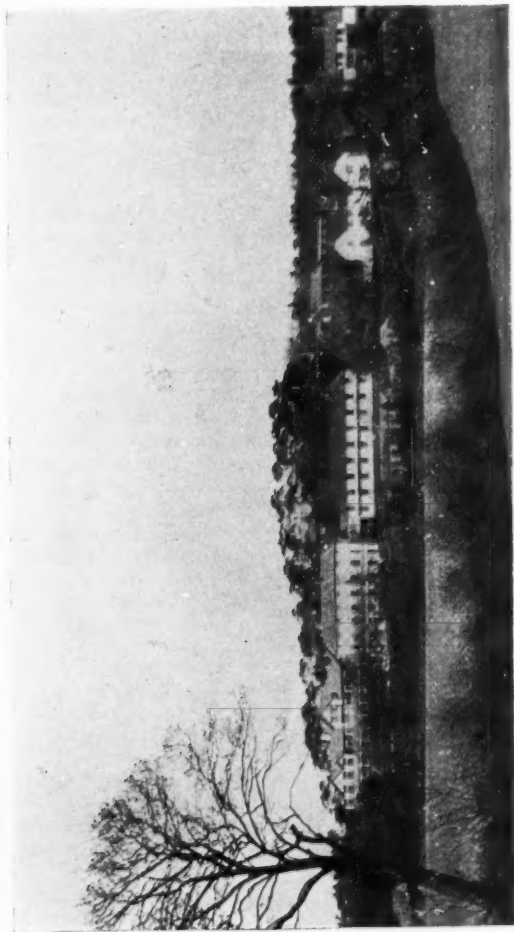
The illustration indicates the southern front with the verandah with glass roof, half of which is sliding. At the rear of the new hospital the site is being planned to provide a new treatment block, including operating theatre, massage department, X-ray department, etc. A new light treatment block, with administrative offices, central kitchen and model schoolrooms, is also being designed.

served their purpose admirably, the cost of renewals and repairs became an increasingly heavy item, and the trustees ultimately decided that it would be more economical to replace with permanent structures. Accordingly, the rebuilding scheme was adopted. In order that the work of the hospital may be carried on during the period of rebuilding, the scheme adopted by the trustees permits the use of existing buildings until new ones are provided to take their place. From the experience that has been gained, the trustees decided that units of sixty beds were the most satisfactory, both from the nursing and administrative points of view. The plans will, therefore, provide for five ward blocks of sixty beds each, making 300 beds in all. These wards have all been planned with a southern aspect on a continuous terrace at the same level. The terrace will be 984 feet long and 25 feet wide, with sloping ways and steps leading to the ground. This is unique in hospital construction, and will give splendid facilities for sun treatment. Each ward unit of sixty beds provides for this accommodation in two wards of twenty-four beds each, two wards of four beds each, and four cubicles, with the sisters' office centrally placed for supervision. On the north side of the wards there is a sanitary spur at each end, with administrative block in the centre, consisting of ward kitchen, stores, surgery, nurses' cloak-room, etc. The southern front of the twenty-four-bed wards will be fitted with folding doors, which will enable each ward to be turned into an open-air ward, while outside the wards for a length of 136 feet will be a glass roof verandah, 10 feet wide, glazed with "vita" glass. The roof of this verandah will be designed so that one half of it will slide—a most useful provision during showery weather. Special care will be taken in the construction and finishing of the buildings that only materials are used most suited for hospital work, so that the cost of upkeep is reduced to a minimum. The whole of the ward blocks on the north side will be connected by a covered way.

THE MUNDESLEY SANATORIUM IN NORFOLK.

THE Mundesley Sanatorium in Norfolk, in order to further the comforts of its patients and to facilitate administration, has undergone considerable development, and important additions have been made. A large new central block has been built connecting the two main buildings, so forming one homogeneous unit. All the bedrooms now have hot and cold running water. There are spacious public rooms, as well as up-to-date medical quarters and also modern gas-heated kitchens, all situated in a central position. This enables patients to have hot meals served in comfort, though still with abundant fresh air, whether ambulant or confined to bed, and to receive all necessary treatment under ideal conditions. The large cheerful sitting-rooms enable patients to pass leisure hours pleasantly, helping considerably in the maintenance of that spirit which is so needful in the successful carrying out of routine measures. Excellent opportunities are now provided for the giving of concerts, cinema-

tograph performances, and the like, and the value of amusements and recreation has been borne in mind and necessary arrangements incorporated in the new building.



THE MUNDESLEY SANATORIUM, MUNDESLEY, NORFOLK.

NOTICES OF BOOKS.

FRENCH WORKS ON TUBERCULOSIS.

DR. CHAUSSINAUD has provided an excellent volume on vaccination against tuberculosis by B.C.G., with an introduction by Calmette himself.¹ In it he attempts, very successfully, to present to the reader the work done on the prophylactic immunization against tuberculosis, theoretical and practical. The subject, in so far as it concerns the prophylactic immunization against tuberculosis, more particularly in the newly-born, must command the serious and unbiassed attention of all those interested in the prevention of the disease. The principle involved in the method is the vaccination of infants by living avirulent tubercle bacilli. The vaccination, ideally, should be done within the first ten days after birth. Calmette isolated the organism from a heifer in 1908, and animal experimentation has been continued indefatigably since then by Calmette and others. Its use for the vaccination of infants began in 1921, since when some 300,000 cases are reported by the writer to have been vaccinated, without danger, in many countries. Little experimentation, even in animals, appears to have been done in this country. We must, however, recognize that, despite the interesting results reported by the writer from the Infants' Clinic of Strasbourg, other workers, who have followed up Calmette's works mainly from animal experimentation, have not obtained equally convincing results. Certain gross errors of statistical data have been reported by, among others, no less an authority than Professor Greenwood. *E.g.*, that the results of the vaccinated and non-vaccinated control infants cannot be compared fairly, since the controls were not isolated from infection after birth as were the vaccinated. The main criticisms against the method are: (1) The questionable safety, not necessarily immediate, of prophylactic immunization against tuberculosis by the use of a living organism; (2) whether the safer use of dead micro-organisms cannot accomplish as much as B.C.G. The correct dosage and method of administration according to the circumstances is of great importance. The vaccine has been used by the writer orally, subcutaneously, intradermally, intramuscularly, and even intraperitoneally in newly-born children, and he claims all these methods, following the indications and dosage he outlines, to be perfectly innocuous. The book contains a very comprehensive bibliography on the subject.

PHILIP ELLMAN, M.D., M.R.C.P.

Dr. René Burnand has written an instructive work on auscultation in the diagnosis of pulmonary tuberculosis.² Contrary to one's expectations, he does not seek to renew the foolish controversy which unfortunately still exists on the relative merits of stethoscope and X-ray. It is recognized very definitely that these two methods of examination

¹ "La Vaccination Contre la Tuberculose par le B.C.G." By Roland Chaussinaud. Pp. 191. With preface by Professor Calmette. Paris: G. Doin et Cie. 1930. Price 38 frs.

² "Précis d'Auscultation dans le Diagnostic de la Tuberculose Pleuro-Pulmonaire." By René Burnand. Paris: Masson et Cie. 1930. Price 40 frs.

in the diagnosis of pulmonary tuberculosis are complementary. There is danger, however, in Dr. Burnand's opinion that auscultation is passing through a grave crisis, and he is careful to emphasize that Roentgen's discovery has not supplanted the work of Laennec, which must be given its right and proper place in every clinical examination. Dr. Burnand, however, unlike certain physicians who put their whole trust in stethoscopic findings, recognizes very definitely that, in view of what radiology has taught us in regard to the pathology and early diagnosis of pulmonary tuberculosis, the value of certain physical signs, especially in so far as they concern "silent cavities" in the lung, is to be questioned, and he suggests that, in the light of modern X-ray findings, certain auscultatory findings will require revision. He is, however, a firm believer in the stethoscope (and every unbiased physician will agree with him), reinforced by a very full *history* and clinical examination (the patient stripped to the waist), which must include inspection, palpation and percussion, to be followed, to complete the examination, by an X-ray examination of the chest, never, of course, failing to examine and re-examine every available sputum. There is, however, a tendency, perhaps more so in France than in this country, to allow a radiogram of the chest to replace a well-recognized and invaluable routine examination. Most clinicians will echo the sentiments of Dr. Burnand in warning practitioners against such a procedure. In this country, however, it would appear that the undoubted advantages to be derived from a radiogram of the chest are not sufficiently well recognized. We must recognize that neither radiology nor auscultation is infallible, and as Dr. Burnand rightly emphasizes, it is upon the cumulative evidence based upon a complete examination clinically, radiologically, and bacteriologically that our diagnosis must rest. Auscultation can give us information, on points concerning activity and prognosis, which is not to be obtained from a radiogram. The broad attitude adopted by Dr. Burnand is highly commendable. The book, apart from the respective merits of the stethoscope and the X-ray, deals very admirably with the modern conception of pulmonary tuberculosis. Jacquero's conception of healing by resolution and the early infra-clavicular focus of "Assman" are not only described, but beautifully illustrated by excellent radiograms, as well as many other recent advances in our knowledge of this disease. There are many radiograms showing varied degrees of tuberculous infiltration with and without cavitation, the corresponding clinical findings being indicated. To sum up, Dr. Burnand emphasizes, and rightly so, that important as laboratory methods, radiology, and auscultation may be, we have need to recognize the necessity of returning to the "esprit clinique," and regarding the results of a complete systematic examination (clinical, bacteriological, and radiological) as a whole. Few will differ from this point of view.

PHILIP ELLMAN, M.D., M.R.C.P.

Dr. Jules Auclair has written a voluminous essay on the prophylactic and curative vaccination of the guinea-pig and the rabbit by means of a vaccine prepared from an attenuated culture of live human tubercle bacilli.¹ The rabbit is described as possessing a greater degree of

¹ "Vaccination préventive et curative du Cobaye et du Lapin contre la Tuberculose Humaine: Ses Indications et ses Effets chez l'Homme." By Jules Auclair. Pp. 186. Paris: Masson et Cie, 120, Boulevard Saint-Germain. 1930. Price 25 frs.

natural immunity and therefore as being more effectively protected by vaccination against experimental doses of virulent bacilli. A section is devoted to the vaccination of man by the same type of vaccine. Numerous experiments are quoted and an original theory is propounded describing the pancreas as the seat of immunity against various types of infection. The author has devoted much time and study to his work, and has interpolated much theorizing.

THE GERSON DIET FOR TUBERCULOSIS.

We have recently reviewed a number of books and articles in these columns dealing with the Gerson diet for tuberculosis which continues to arouse considerable interest in Germany and Austria.¹ The diet aims at: (1) Limitation of mineral salts; (2) reduction of the proportion of carbohydrate in the diet; and (3) addition of raw foods containing vitamins. It is based on the theory that removal of salt from the food tends to dry up the tissues and that this process aids in the healing of the exudative lesions of tuberculosis. The carbohydrates are reduced lest they may favour catarrhal affections, while protein fats and lipoids should raise bodily resistance. Gerson in his book discusses his results fully, and gives detailed scales of diet. The foods to be strictly avoided are: Common salt, all kinds of preserves, smoked or spiced meat, smoked or salted fish, vegetable soup, cheese, vinegar, bacon, ham, sausage, cocoa, chocolate, cake, strong tea and coffee, and alcohol. Special skill is required in the preparation of the salt-free diet, so that it can only be adequately provided in an institution. All foods must be fresh, and salt must not be used in cooking. A number of cases of arrest of pulmonary tuberculosis as well as improvement in cases of lupus and surgical tuberculosis under the diet are cited. Many of the patients, however, also underwent hospital and hygienic treatment. One drawback to the method is the craving for salt which is trying to the patients. This may be overcome by a suitable change in the uniformity of the diet. We are aware that the Gerson diet has been tried in certain British sanatoria, and it would be interesting to hear the results.

A. S. M.

THE PRINCIPLES AND PRACTICE OF MEDICINE.

The physician desiring to keep abreast with the rapidly advancing principles and practice of modern medicine should seek to maintain a sure foundation, and this cannot be better attained than by making it a point to study an up-to-date textbook on physiology. Those ap-

¹ "Meine Diät" [My Diet]. By Dr. Max Gerson. Pp. 168, with twelve tables and a diet-scale. Berlin: A. G. Ullstein. 1930.

"Die Diätetik der Tuberkulose" [The Dietetics of Tuberculosis]. By Dr. Schulte-Tigges, Heilstätte, Rheinland (*Berliner Klinik*, Heft 415-416). Pp. 40. Leipzig: H. Kornfeld. 1930. Price M. 1.50.

"Wirkungen Kochsalzfreier Ernährung auf tuberkulose Erkrankungen" [The Effects of a Salt-Free Diet on Tuberculous Cases]. By Adolf Hermannsdorfer. With seven coloured and five uncoloured plates. *Zeitschrift für Tuberkulose*, 1930, Band 57, Heft 1-2, p. 40.

"Beobachtungen bei Chronisch-Lungen-tuberkulosen nach längerem Gebrauch der Sauerbruch-Hermannsdorfer Kostform" [Observations on Chronic Pulmonary Tuberculosis after a Prolonged Course of the Sauerbruch-Hermannsdorfer Method of Diet]. By Dr. Max Mecklenburg. *Ibid.*, pp. 47-50.

proving this suggestion should obtain the new edition of what was known for many years as "Halliburton's Physiology."¹ This justly popular work originally appeared in 1848 under the name of Dr. Kirkes. In 1896 Professor Halliburton undertook the care of the book, and in twenty-nine years seventeen editions were issued totalling 116,000 copies. In 1928 the co-operation of Professor McDowall was secured, and the work entered upon a new era of prosperity with the appearance of the eighteenth edition. And now a further edition is necessary. The view-point is no longer an anatomical one, but is based on modern studies of physiological studies. This classic work has undergone thorough and extensive revision and is now the most up-to-date, comprehensive and effective handbook for present-day students. Readers of this JOURNAL will be well advised to read the admirable chapters dealing with the Physiology of Heart and Circulation, Respiration, Nutrition and Growth, including the section on Endocrine Organs. Professor Halliburton and McDowall are to be congratulated on having provided all students of physiology with a model work, and the publishers have issued it in a form worthy in every way.

Among works on clinical medicine, that written by the late Dr. T. D. Savill occupies a unique position.² The first edition appeared in 1907, the second in 1909. Dr. Agnes Savill, the author's widow, has with rare courage, diligence, and skill maintained her husband's fine system in the forefront of medical textbooks. A new and eighth edition has recently been issued. Savill's "Clinical Medicine" differs from all the current systems of medicine: it approaches disease from the standpoint of symptomatology. This makes the work one which through nearly twenty years has specially appealed to the general practitioner. There is something very attractive about the work, and it is one which has been greatly appreciated by all serious students and practitioners interested in symptomatology, and is likely to continue to occupy a prominent place among reference books approved by busy doctors. By the use of differing distinctive types, numbering of sections, paragraph headings, and orderly division into chapters, the work is ideal for convenient study and rapid reference. We would particularly commend it to the consideration of tuberculosis officers, medical superintendents of sanatoria, and all engaged in general practice. The accounts of chronic pulmonary tuberculosis and other forms of tuberculous disease are particularly informing, suggestive, and helpful. The new edition has undergone thorough revision and been effectively brought up-to-date. Dr. Reginald Hilton has been responsible for the revision of the chapter on Diseases of the Lungs. Several other distinguished physicians and experts have assisted in the revision.

¹ "Handbook of Physiology," by W. D. Halliburton, M.D., LL.D., F.R.C.P., F.R.S., Emeritus Professor of Physiology, University of London, King's College, and R. J. S. McDowall, M.B., D.Sc., F.R.C.P.E., Professor of Physiology, University of London, King's College. Nineteenth, revised, edition. Pp. xi+842. With numerous illustrations in the text, many of which are coloured, and four coloured plates. London: John Murray, 50, Albemarle Street. 1930. Price 18s.

² "A System of Clinical Medicine dealing with the Diagnosis, Prognosis, and Treatment of Disease for Students and Practitioners." By Thomas Dixon Savill, M.D. Eighth edition. Pp. xxviii+1019. London: Edward Arnold and Co., 41, Maddox Street, W. 1. 1930. Price 28s.

Dr. Savill's system is a work of which British medicine may well be proud, and we hope it will long be maintained as a reliable and helpful textbook. The publishers have produced it in a worthy form: it is admirably printed on good paper, excellently illustrated, serviceably indexed, and is in every way a model volume.

Tuberculosis officers, medical superintendents of sanatoria, and busy practitioners desiring to keep abreast with the rapid advance of modern medicine should study the new edition of Dr. H. L. Tidy's admirable synopsis.¹ This work, now in a revised and enlarged edition, has since its first appearance in 1920 found much favour with senior students preparing for their final examinations. It is, indeed, a reference work which every medical adviser will do well to keep at hand, for it provides a remarkably complete and up-to-date condensed presentation of all essentials relating to the principles of medicine. The chapter dealing with tuberculosis extends over forty-three pages, and is truly a most comprehensive yet concise account of the disease in its various forms. There is a cleverly constructed diagram of the morbid anatomy of chronic pulmonary tuberculosis. An illustration indicates the chief features in the production of an artificial pneumothorax. Dr. Tidy's serviceable work fully deserves the favour which has been liberally bestowed on the various editions which have appeared during the ten years the volume has existed.

MANUALS FOR MEDICAL ADVISERS AND WORKS OF REFERENCE.

Dr. Maurice Davidson's monograph on cancer and other forms of growth of the lung is a work which every medical adviser responsible for the diagnosis and care of chest cases should study.² Primary cancer of the lung is apparently increasing in frequency. Recent developments in radiology have made earlier diagnosis possible, and the advances in chest surgery enable palliative if not curative measures to be attempted in suitable cases. And so Dr. Davidson's admirably produced work with its fine illustrations is timely, for it provides not only a detailed record of a number of instructive cases, but furnishes a condensed, concise, and serviceable epitome of present-day knowledge regarding malignant disease of the lung. The author has carefully studied the literature of the subject, and the bibliography contains ninety-eight references. The work is of practical value. It opens with a condensed historical and statistical account of the subject, and then follows a lucid account of pathological aspects. The practising physician will be specially interested in the important chapter dealing with symptomatology and clinical examination. The most valuable section is that devoted to radiological investigations: Dr. Stanley Melville furnishes a note on technique and there is a fine

¹ "A Synopsis of Medicine." By Henry Letheby Tidy, M.A., M.D., B.Ch., F.R.C.P. Fifth edition, revised and enlarged. Pp. xv + 1032. Bristol: John Wright and Sons, Ltd. 1930. Price 21s.

² "Cancer of the Lung and other Intra-thoracic Tumours." By Maurice Davidson, M.A., M.D., B.Ch., F.R.C.P., Physician to the Brompton Hospital for Consumption and Diseases of the Chest, and Dean of the Brompton Hospital Medical School. With a Foreword by Arthur J. Hall, M.A., M.D., D.Sc., F.R.C.P., Professor of Medicine in the University of Sheffield. Pp. x + 173, with 62 figs. Bristol: John Wright and Sons, Ltd. 1930. Price 17s. 6d.

series of skiagrams of cases which have been studied in the Brompton Hospital. In the chapter on Diagnosis modern methods of examination are described and illustrated. A short chapter is devoted to the consideration of Non-malignant Intrathoracic Tumours. The monograph concludes with a brief chapter on Treatment. A word of praise must be bestowed on the publishers for the admirable way in which the book has been produced.

Dr. W. A. Troup has produced a timely and serviceable manual on the therapeutic value of infra-red radiations.¹ It claims to be the first work of its kind issued in this country: the literature in English on the subject is comparatively meagre. Sir William Willcox in his commendatory Foreword speaks of infra-red irradiation as being "one of the most important remedial agents which can be put into the hands of medical practitioners." Dr. Troup sets forth in fifteen clear, precise, helpful chapters how this new agency may be employed therapeutically, safely, and advantageously. In the treatment of rheumatism, rheumatoid states and other conditions, including certain surgical affections, as well as some affections where pain and discomfort are conspicuous features, infra-red irradiation often affords immediate relief. In the treatment of the aches and pains experienced by many tuberculous subjects undergoing sanatorium treatment there is reason to believe that this form of radiation may in suitably selected cases prove advantageous. Dr. Troup provides descriptions with illustrations of various forms of apparatus for the generation of infra-red rays and their proper application. Much valuable advice is afforded regarding technique. A chapter is allotted to the consideration of the combined use of infra-red and ultra-violet radiations. The author writes as a general practitioner and his work will doubtless be appreciated by many medical advisers engaged in active practice.

Dr. Ernest Ward has issued a companion volume to his attractive and revealing little collection of practical essays, "Medical Adventure," recently noticed in this JOURNAL. In "General Practice" Dr. Ward has set forth in compact, racy, entertaining form, impressions, experiences, and opinions relating to some of the human aspects and personal difficulties of the doctor engaged in general practice.² There are instructive chapters on the Selection and Types of Practice, Matrimony, The Day's Work, Patients, Colleagues, Medical Societies and Journals, and many other matters of practical importance. Dr. Ward in his preface explains that his book has been written for medical students about to qualify or who have recently qualified, and is not intended for those of mature experience or the lay-reader. We have no hesitation in commending it to the attention of all doctors and senior medical students, for it is full of such common sense, interesting and illuminating records as will be helpful to every man and woman seeking to practise medicine in accordance with the best traditions and the highest ethical standards.

Lovers of England's pastures and by-paths should read Miss Clare

¹ "Therapeutic Uses of Infra-Red Rays." By W. Annandale Troup, M.C., M.B., Ch.B. (St. And.). With a Foreword by Sir William Willcox, K.C.I.E., C.B., C.M.G., M.D., F.R.C.P. Pp. x+59, with xvi plates. London: The Actinic Press Ltd., 17, Featherstone Buildings, W.C. 1. 1930. Price 5s. 6d.

² "General Practice: Some Further Experiences." By Ernest Ward, M.D. (Camb.), F.R.C.S. (Eng.). Pp. v+108. London: John Bale, Sons and Danielsson, Ltd. 1930.

Cameron's charming records of footpath travels in some of the most delightful districts of our country.¹ England is rich in beautiful byways. "The Green Fields of England" makes an irresistible call to good comrades of the road, and also to those who in search of health, beauty, and perfect companionship seek the open country and by-lanes of our dear countryside: to all such we commend this uplifting book. Miss Cameron has succeeded in capturing the spirit and manner of the English pastoral. She deals specially with such districts as the Thames Valley, the Chilterns and Cotswolds, Central Wales and the Welsh borderland, East Anglia, Sussex, and some of the abbeys of Yorkshire. "Green Fields of England" is a beautiful book, and Mr. Warre's delicate drawings add to its attraction. This volume makes an ideal gift book, and will be a source of delight and comfort to many invalids and sad souls handicapped by age and sickness. Even motorists may find profit by a perusal of these footpath studies. We hope Miss Cameron will not delay in providing us with another collection of picturesque descriptions of her peaceful rambles in England's green fields.

Mr. C. G. Harper's delightful yet concise work on the City of London is a guide-book which every lover of London should possess.² It describes with grace and literary skill the region of the Metropolis ruled over by the Lord Mayor and Corporation, giving faithful records of the past and providing a fascinating account of the conditions and activities of the present. A particularly attractive section is that which is devoted to accounts of tours through the City, in which the chief features are succinctly described. There are accounts of the City Livery Companies, the markets, the Bank of England, the Tower, the Temple and the Temple Church, and other glories of which all Englishmen can well be proud. The illustrations from pen-and-ink drawings by the author add greatly to the attractions of a notable little volume. There is a good index and a map.

London of all cities of the world is the most wonderful, and every Britisher at some time in his life should come under the charm of our great Metropolis. Mr. W. Teignmouth Shore has written a fresh, fascinating guide which ably but in concentrated and convenient form describes the attractions of the chief features of historic London.³ It is a delightful companion for all who dwell in or visit London and desire friendly guidance. In 100 pages and with maps indicating various tours, numerous photographic plates and pen drawings the author has set forth in an unconventional manner the delights of London, providing what Mr. John Burns in his interesting introductory note describes as "one of the most suitable and practical guides to this great and fascinating yet neighbourly city." We earnestly commend this serviceable volume to the notice of doctors and students living, visiting, or studying

¹ "Green Fields of England: A Book of Footpath Travels." By Clare Cameron, with nine pencil drawings by Edmond L. Warre. Pp. 249. London: Constable and Co., Ltd., 10-12, Orange Street, W.C. 2. 1930. Price 12s. 6d.

² "The City of London Guide." By Charles G. Harper. Third edition. Pp. vii + 135, with aqua-etching frontispiece by E. Margaret Holman, 27 drawings by the author, and 8 illustrations from photographs. London: Ed. J. Burrow and Co. Ltd., 45-47, Kingsway, W.C. 2. 1930. Price 1s.

³ "Touring London with W. Teignmouth Shore: A little book of friendly guidance for those who visit London and those who dwell in London." Pp. 100, with 45 illustrations in all. With an Introductory Note by the Rt. Hon. John Burns, P.C. London: B. T. Batsford, Ltd., 94, High Holborn, W.C. 1. 1930. Price 4s.

in London, as well as to those who from America and foreign lands are spending but a short time in this ancient but ever-evolving Thames-side city.

Winter Sports in Switzerland and other countries now provide splendid opportunities for the renewal of health and the prevention of disease by the taking of a delightful mid-winter holiday. Mr. Arkell has gained inspiration among the snow and ice for his delightful collection of amusing verses effectively illustrated by Mr. Lewis Baumer.¹ All who are visiting Swiss winter sports stations should secure a copy of "Winter Sports." It is a charming reminder in verse of adventures and other happy experiences on skis, skates and toboggans in Switzerland, which will be read with pleasure and profit when winter days are past. The pictures in colour are most amusing. Here is an ideal gift book for doctors and others who know of the joys of a Swiss winter holiday.

The Riviera is one of the most highly favoured districts of Europe and is likely long to remain popular among those desiring rest and change in the interests of health. At this season of the year medical advisers have often to send patients to the Riviera, and in selecting desirable health stations they will obtain reliable information from the new edition of Ward, Lock, and Co.'s admirable handbook.² This very practical reference book and pocket companion is a member of the Ward and Lock Continental Handbooks series, which have proved a boon to Britishers travelling abroad. It is a treasury of serviceable information, set out in clear, compact, readable form. The maps are excellent, and the numerous illustrations add greatly to the attractiveness of the volume. The section on climate, the accounts of travel routes, and the notes on motoring, hotels and tariffs, clothing and equipment, and other practical affairs, will be found of great service by health seekers visiting the Riviera.

British visitors to Germany should secure a copy of the latest edition of the beautifully illustrated handbook issued from the Terramare Office in Berlin.³ The subject-matter is effectively arranged under the following headings: Eastern Germany, German Politics, German Agriculture, The Heart of Germany, German Architecture, Fine Arts, Religion and the Churches, The Rhine on its Way through Germany, Rhine-Main-Danube Canal, South Germany and Austria, and the German Transatlantic Seaports. Much valuable information is also provided regarding Vacation, Travel, and Study in Germany, Summer Courses and various Institutions. An interesting section deals with German Sanatoria. There is a concise "Who's Who" of those who have co-operated in the production of this charming handbook. The publishers have kindly informed us that they will be glad to supply any reader of this JOURNAL with a free copy on receipt of name and address and two international reply coupons to cover postage.

¹ "Winter Sportings." By Reginald Arkell, with illustrations by Lewis Baumer. Pp. 79. London: Herbert Jenkins, Ltd., 3, York Street, St. James's, S.W. 1. 1930. Price 3s. 6d.

² "A New Handbook to the Riviera from Hyères to Viareggio." With map of the Riviera, and street plans of Hyères, Cannes, Nice, Monaco and Monte Carlo, Menton, San Remo, and Genoa. Pp. 208, with 60 illustrations. London: Ward, Lock, and Co., Ltd., Warwick House, Salisbury Square, E.C. 4. 1930. Price 5s.

³ "Passing Through Germany." Seventh edition. Pp. 225, with maps and numerous illustrations. Berlin, S.W. 48: Terramare Office, Wilhelmstrasse, 23. 1930.

Dr. A. Wilmore has issued in Bell's Intermediate Geographies series of handbooks an admirable introduction to the study of Experimental and Open-Air Geography.¹ It is arranged to cover four years of ordinary school work. We commend it to the notice of medical advisers, teachers, and others responsible for the care and conduct of sanatoria and open-air schools and the management of patients in such institutions. The author sets out in twelve compact, lucidly expressed, attractive lessons, arranged in 200 numbered sections, essentials regarding physical geography, weather and climate, features shown on maps, survey methods, the use of instruments and the like. At the end of each chapter is a set of revision questions. The work is suitably illustrated and the general format is excellent.

"A Gardener's Prayer Book" is a charming compilation of thoughts and prayers in prose and verse collected from many and varied sources, but all real gems, which we commend to all lovers of Nature and workers in gardens.² It is an ideal gift book for those who in sanatoria, settlements, open-air schools and the like are joyously working among flowers and fruits and proving themselves God's gardeners.

Mr. Robert Heys has provided a condensed, helpful handbook on Home Decoration, of which 250,000 copies have been sold.³ It is full of practical hints on painting, varnishing, staining, paperhanging, and the like, and we commend it to the consideration of those responsible for the hygiene, beautifying, and care of sanatoria, open-air schools, as well as the proper maintenance of private houses and other buildings.

The "Papworth Annual" is now in its tenth edition, and has been produced by Papworthians—artists, writers, printers—all of whom live or have lived at the world-famous Papworth Tuberculosis Settlement. The Chairman, the Right Hon. Sir Frederick Milner, and the President, Sir Humphry Rolleston, and all who co-operate in the beneficent work at Papworth, are to be congratulated at the 1930 issue of the "Papworth Annual." Articles and illustrations admirably portray the aims and life of Papworth. (The price is 1s.)

"Whitaker's Almanack" is a national possession, and should have a place among indispensable reference books which should be kept within the reach of every doctor and all other citizens of light and leading.⁴ The issue for 1931 is the sixty-third annual volume, and appears in its familiar form, a model of concise, well-ordered presentation regarding government, finances, population, commerce, and general statistics, not only of Great Britain, but of the various nations of the world. A very complete list is provided of the principal British and Irish societies and institutions, and there is a serviceable list of metropolitan hospitals.

¹ "Experimental and Open-Air Geography." By Albert Wilmore, D.Sc. Pp. vii+198, with 42 figs. London: G. Bell and Sons, Ltd., York House, Portugal Street, Kingsway, W.C. 2. 1930. Price 1s. 9d.

² "A Gardener's Prayer Book: Being a few Prayers and Thoughts from the Lessons we learn of Flowers and Trees in a Garden." By M. L. W. Pp. 62. London: Student Christian Movement Press, 58, Bloombury Street, W.C. 1. 1930. Price 2s. 6d.

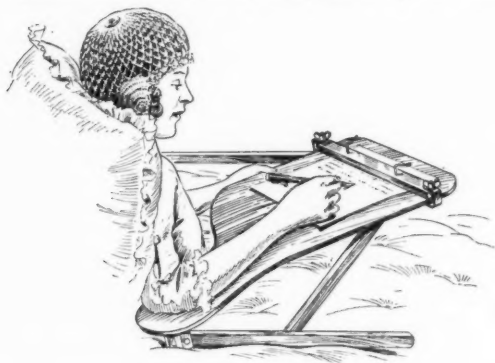
³ "Hints for Home Decorators: The Decorator's Complete Guide." By Robert Heys. Twenty-eighth edition, revised. Pp. 144. Blackpool: Texalo Manufacturing Company, Henry Street Works, South Shore. 1930.

⁴ "An Almanack for the Year of our Lord, 1931." By Joseph Whitaker, F.S.A. Pp. clix+960. London: J. Whitaker and Sons, Ltd., 12, Warwick Lane, E.C. 4. Price 6s.

PREPARATIONS AND APPLIANCES.

HYGIENIC APPLIANCES AND THERAPEUTIC PREPARATIONS.

THE "KANGAROO" BED DESK is a novelty which will prove a boon to many an invalid and bed-fast patient.¹ Its essential features and manner of use are indicated in the accompanying illustration. The "Kangaroo," so-called from its shape, is a serviceable appliance for all who desire to read or write when in bed, so its benefits are not necessarily restricted to the sick. It is readily placed in position, and when not required can be folded up and placed by the bedside. The



THE KANGAROO BED DESK.

"tail" portion fits snugly under the arm, and on the firm, rigid, wooden body writing materials, book, or the like are placed. By means of readily moved clamping screws the apparatus can be adjusted. There are also sliding supports which allow for elevation at any angle and firm fixation. We understand that this serviceable bed desk was designed by Sir Arnold Lawson. (The price is 18s. 6d.)

THE EVER-READY SPOTLIGHT ELECTRIC TORCH is a practical companion which every doctor, nurse, and patient should possess.² Of the many varieties of electric torches and searchlights now available, this form is one which can be particularly commended to members of the medical and nursing professions. It is one of the finest electric torches available, self-contained, portable, with nickel-plated fittings and specially designed octagonal head and silvered reflector, which in the focussing models enables a beam of light to be projected for distant

¹ A detailed and illustrated description of the "Kangaroo" Bed Desk can be obtained from the makers, Theodore Hamblin, Ltd., 15, Wigmore Street, Cavendish Square, W. 1.

² The Ever-Ready Spotlight Electric Torch is manufactured by the Ever-Ready Company (Great Britain), Ltd, Hercules Place, Holloway, N. 7.

observation or for general illumination, as may be required. The torch can be obtained in artistic shades of cellulose enamel—olive green, grass green, maroon, royal blue, deep red, and turquoise blue. (The price is 6s. 6d.)

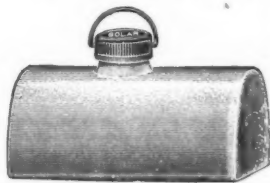
THE "EVVATYDI" SELF-CLOSING RECEPTACLE is a hygienic novelty which all should welcome.¹ It is made of sheet steel, attractively finished in various coloured enamels, and provides a practical means for the collection and disposal of litter and waste materials. Four sizes are now available, and each is fitted with a suitable paper, fabric, or galvanized iron container, which is readily removed from the outer case. The cover of the receptacle works automatically. The "Evvatydi" is simple, durable, fire and vermin proof, easy to use and cleanse, and is always ready for service. Wherever litter accumulates "Evvatydis" will be of service. These receptacles will be appreciated in hospitals, sanatoria, open-air schools, and other institutions, for use in offices, public buildings, hotels, as well as in parks, on commons, at sports grounds, and in all other places where waste needs to be promptly and effectively dealt with for aesthetic as well as sanitary reasons. (Prices range from 19s. 6d. to £3 16s. 6d.)



THE "EVVATYDI"
SELF-CLOSING
RECEPTACLE.

THE DESK "CALENDOS" is an ingenious perpetual calendar which will prove a welcome companion and serviceable reminder for the doctor's consulting-room table.² Upon a transparent disc appears a series of red lines, and these on rotating a centrally placed knob cancels the days as they pass, and leave the actual day indicated. The artistic and moulded Bakelite setting is very attractive, and will not readily tarnish. No refills are necessary. Here is indeed an acceptable New Year's gift. (The price is 5s. 6d.)

THE SOLAR ALUMINIUM HOT-WATER BOTTLE offers many advantages for hospital and sanatorium use, as well as for general domestic service.³ It is a member of the series of admirable "Solar" cast aluminium ware which find such favour in institutions and households of every kind. Among the advantages of this hot-water warmer are its durability, immunity from cracks and breakages, and its property of retaining heat. (The price is 15s.)



THE SOLAR ALUMINIUM
HOT-WATER BOTTLE.

THE LISOVAL RUGS are ideal for the bedside, and will be approved by patients in sanatoria and elsewhere.⁴ They are skilfully constructed of hard-wearing, lustrous, pure mohair, and have a deep, comfortable "pile."

¹ The "Evvatydi" Self-Closing Receptacle is manufactured by L. Lumley and Co. Proprietors, Geo. Adlam and Sons Ltd., The Minories, E.C. 3.

² The Desk "Calendos" is manufactured by Handy Things Ltd., 11, Spenser Street, Westminster, S.W. 1.

³ The Solar Aluminium Hot-Water Bottle is made by the Aluminium Castings Company Ltd., Ingleston Foundry, Greenock, with London offices at 1, Dyers' Buildings, E.C. 1.

⁴ The Lisoval Rugs are manufactured by Lister and Co. Ltd., Manningham Mills, Bradford, Yorks, from whom full particulars can be obtained on application.

They are available in oblong, half-moon, and oval shapes, in a wide range of pastel shades to harmonize with any colour scheme, and in a variety of sizes. (The prices range from 24s. 9d. to 37s. 6d.)



THE GRIPPER
FOOTSCRAPER.

THE GRIPPER FOOTSCRAPER is an ideal appliance for sanatoria and open-air schools as well as for country homes and all institutions where active love of the open air are to be found.¹ It is available in two forms—the trident and the bi-prong. This attractive and serviceable contrivance is a practical guardian for every house, and should stand alongside the entrance door. It is artistic in design and has a strong and durable frame, and the brushes are stiff and effective in cleansing mud and dirt from boots and shoes. The Trident and Bi-prong Footscrappers are members of the "Gripper" family of practical specialities which have power to add to the comforts and pleasures of life. (The prices are: Bi-prong, 10s.; and Trident, 15s. 6d. and 17s. 6d.)

THE NESBIT-EVANS PORTABLE BACK REST indicated in the adjacent figure is a valuable adjunct for any ordinary bedstead, and will add to the comfort of bed-fast patients.² It can be readily fitted and adjusted, and in order that the metal of which it is composed shall not damage the enamel of the bed-frame leather sleeves are provided. By the use of this rest many patients, especially those with chest troubles, will be greatly helped. It is strong, light, non-slipping, and allows range for adjustment, and is available in sizes to fit all beds.



THE "TY-DE"
BOOTSCRAPER.

THE "TY-DE" BOOTSCRAPER, as the accompanying illustration indicates, is a practical contrivance which only needs to be used to be appreciated.³ It is a simple, strong, effective metal scraper for boots and shoes, which can be readily fixed in the ground anywhere. We commend it not only to ordinary householders, gardeners, and others in country districts, but to those responsible for the care and cleanliness of sanatoria and open-air schools and other institutions where children and other residents are likely to come and go with dirty footwear. (The price is 1s. 6d., postage 9d.)

FURIDA MITTS will prove invaluable for patients undergoing open-air treatment in sanatoria or elsewhere, and for children attending open-air schools in winter-time.⁴ The mitts are made in sizes for men, women, and children, and are fashioned of softest Angora wool in several attractive colours, and so shaped as to leave the fingers free and permit firm gripping, but keeping the greater part of

¹ The Gripper Footscrappers are supplied by The Gripper Distributing Company, the headquarters of which are at 16, Princes Street, Yeovil, Somerset.

² The Nesbit-Evans Portable Back Rest is made by J. Nesbit-Evans and Co., Hospital Furnishers, Wednesbury, Staffs.

³ Full particulars regarding the "Ty-De" Bootscraper can be obtained from the makers, R. Russell and Sons, Ltd., Peel Foundry, Derby.

⁴ The Furida Mitt is manufactured by the firm of Derwent Mills, Limited, Matlock, Derbyshire.

the hand and wrist well protected. These protectors will also find favour with the vigorous who desire to engage in winter sport or outdoor work during cold weather. (The wholesale prices are: Adults, 60s. per dozen; children, 48s. per dozen.)

THE I*XL STAINLESS STEEL DOCTOR'S POCKET KNIFE is a practical companion which may well be found in the pocket of every medical adviser.¹ It will be of service to patients undergoing open-air treatment in sanatoria or travelling for the sake of health. This knife has a long, highly-polished blade of stainless steel, and the handle is of polished buffalo horn. It has been made in the Sheffield works of George Wostenholm and Son, Ltd., for nearly a hundred years, and is an ideal instrument for the medical student and practitioner, for it not only serves all the purposes of an ordinary knife, but can be used for cutting apples and other fruits, for opening letters and cutting the pages of books, and in the dispensary it will serve many practical purposes. A nickel-silver cap at the end of the knife can be used as a seal with sealing-wax, and for pressing tobacco into a pipe's bowl. We have used the knife with much satisfaction. (The price is 4s.)

THE CROID OUTFIT provides an adhesive agent which should be available in every house and institution, and doctors, nurses, teachers, medical superintendents of sanatoria, and those engaged in the conduct of open-air schools will find it of special service.² It consists of a simple appliance whereby all forms of gluing operations are greatly facilitated, and affords a clean, compact, and convenient means for using "Croid" glues for all adhesive purposes.

VITA-WEAT is a new dietetic preparation which is finding favour among both the sick and the sound.³ This British Whole Wheat Crispbread is a pleasing alternative to ordinary bread. It is extremely palatable, has a delicious "crunchiness," and possesses a ripe-corn flavour. Moreover, it encourages mastication and is good for the teeth, stimulates peristalsis without irritation, and counteracts a tendency to constipation. Vita-Weat has a high physiological fuel-value, contains Vitamins A, B, and D, and is rich in proteins and essential salts. It is also said to prevent obesity. We commend this attractive foodstuff and valuable element of a sound dietary to those who have the care of tuberculous children and adults, and it is specially effective when taken after having been placed for a few minutes in a hot oven or gently warmed before an open fire.

GOMENOL preparations are French specialities which are finding much favour especially in the treatment of microbic affections.⁴ They have been employed with apparent advantage in cases of pulmonary and other forms of tuberculosis, and in various chest diseases and lesions involving the respiratory tract. Gomenol is a natural essential oil, and is available as a syrup, in capsules, and in a number of other

¹ The I*XL Stainless Steel Doctor's Pocket Knife is manufactured by George Wostenholm and Son, Ltd., Washington Works, Sheffield.

² The Croid Outfit and the Croid glues are made by the Improved Liquid Glues Company, Ltd., Imperial House, 15, 17, and 19, Kingsway, W.C. 2.

³ The manufacturers of Vita-Weat, Peek, Frean and Co., Ltd., Biscuit Works, Drummond Road, S.E. 16, will send to any medical adviser making application a free sample with analysis and full particulars.

⁴ Gomenol preparations are manufactured at the Laboratoire des Produits du Gomenol, 48, Rue des Petites Ecuries, Paris, and full particulars can be obtained from the British Concessionaires, Coates and Cooper, 41, Great Tower Street, E.C. 3.

pharmaceutical forms. It can also be obtained in an oily condition (oleo-Gomenol), when it can be employed in the production of so-called oleothorax.

CLAROCIT is a preparation for the prevention of condensation upon glass. When applied to lenses, windscreens, dental and laryngoscopic mirrors, and other similar surfaces, densing is prevented. Clarocit is supplied in neat nickel containers which readily fit into a small bag or pocket. Doctors will find this simple preparation very useful.¹ (The price is 1s. 6d.)

At this season of the year chocolates and sweetmeats are justly popular not only among children, but among men and women of all ages and every class. They provide ever-welcome presents for patients.

The Cadbury products are manufactured under ideal hygienic conditions at the Factory in a Garden, Bournville.² A box of Cadbury chocolates is always a welcome gift. Among this year's range of attractive specialities the new Golden East Assortment occupies a foremost place. This charming selection of de luxe chocolates embodies all the best features of artistic production and modern continental packing. The Cadbury products are presented in many novel forms admirable for the purposes of presents. It must also be noted that all the Cadbury delicious chocolates are made from the finest ingredients and under scientifically controlled conditions.

We have been favoured with specimens of the specialities produced by Messrs. Fry and Sons, the well-known cocoa and chocolate manufacturers of Bristol and Somerdale. These attractive confections are produced in artistic forms, pretty boxes and novelties, which are more delightful than ever. The chocolates are of the finest quality and possess the most delicious flavour possible. Medical advisers are well acquainted with the food value of Fry's milk chocolate. In its preparation fresh full cream from West of England farms is used, and a special process of manufacture guarantees the unimpaired presence of the natural vitamins. As a nutrient and stimulant Fry's chocolate in its various forms merits unqualified praise.³

The firm of James Pascall has for long been known as manufacturers of reliable, nourishing, and delicious sweetmeats. We have recently received specimens of the Pascall barley sugar, which is a confection available in the customary sticks and also in convenient squares. This sugar is of much service to children, athletes, sportsmen, and other subjects requiring sugar in a peculiarly pure and nourishing form. We would also commend the Ambrosia milk chocolate, made entirely with Devonshire milk. The milk is dried in the Ambrosia factories at Lapford and Lifton in Devonshire and sent in sealed containers to the Pascall factory at Mitcham, where it is combined with the finest specially selected cocoa beans.⁴

Callard and Bowser's butterscotch may be reckoned a national speciality, and most of us count it one of the happy associations of

¹ Clarocit is supplied by The Clarocit Company Ltd., 110, Great Portland Street, W. 1.

² Booklets descriptive of the Cadbury chocolate preparations and cocoa products may be obtained on application to Cadbury Bros., Ltd., Bournville, Birmingham.

³ Full particulars regarding Fry's chocolate and confectionery can be obtained on application to J. S. Fry and Sons, Ltd., Bristol and Somerdale.

⁴ Particulars regarding the Pascall products may be obtained on application to James Pascall, Ltd., Blackfriars Road, S.E. 1.

childhood's days. This sweetmeat is not only delicious and highly nourishing, but is also a soothing preparation which many patients with cough and irritation of the respiratory tract will appreciate. We would also commend the excellent preparation of barley sugar which the firm send out packed in glass bottles. This preparation is now extensively used on medical grounds in the maintenance of health and the treatment of convalescent and other hospital patients. This barley sugar is manufactured from pure sugar and 30 per cent. glucose, and is not only delicious to the taste, but is very effective in assisting growth and the proper functioning of the body.¹

After-Dinner Mints, manufactured by the firm of Coutts of Glasgow, are a particularly attractive confection which have become very popular in Great Britain and Northern Ireland.² They are made from the purest sugar and the best quality of peppermint, and the greatest care is taken throughout the process of manufacture to ensure absolute purity in every respect. These mints are not only a highly palatable sweetmeat, but are of service in many cases with digestive derangements.

Abdulla Cigarettes are popular everywhere, and find special favour among many members of the medical profession.³ At this season of the year a Blue Leather Gold Cabinet or Grand Cabinet de Luxe filled with Turkish, Egyptian, Russian, or Virginian cigarettes, all of the highest workmanship, forms an ideal present for a doctor or indeed for almost any other smoker of tobacco in its most approved form. The Abdulla specialities in their various brands, varieties, and attractive packings are so well known and so greatly appreciated that any ordinary notice is superfluous. We would here remind medical advisers that many patients often prejudice their case by smoking inferior cigarettes, and that the house of Abdulla can provide cigarettes of such quality as will meet the requirements of every class of patient.

The famous house of Jager and Sons of Heiloo in Holland have favoured us with specimens of their Indoor Flowering Bulbs, and it is a pleasure to testify to the excellence of the blooms already obtained this season from the Dutch bulbs. Those of our readers who are interested in the brightening of homes and hospitals by brilliant blooms in winter day and at springtide should study the Jager illustrated catalogues.⁴

The 1931 "Tit-Bits Year Book," edited by Leonard Crocombe and published by George Newnes, Ltd. (price 1s.), is a marvellous "enquire within," a reference volume which every citizen should possess. It contains a serviceable list of hospitals and charities, helpful notes on health subjects, and information and advice on a multitude of questions which are constantly arising.

¹ Particulars regarding the products manufactured by Callard and Bowser, Ltd., can be obtained on application to the Works at Duke's Road, Euston Road, W.C. 1.

² The After-Dinner Mints are made by William Coutts, Ltd., Chocolate and Confectionery Manufacturers, 26, French Street, Glasgow.

³ An attractive account of the various Abdulla specialities can be obtained on application to Abdulla and Co. Ltd., 173, New Bond Street, W. 1.

⁴ A catalogue may be obtained on application to P. de Jager and Sons, Flower Bulb Specialists, Heiloo, Holland.

THE OUTLOOK.

APPARATUS FOR MASS TREATMENT OF CHILDREN WITH ULTRA-VIOLET RAYS.

DR. BENJAMIN GOLDBERG, Medical Director of the City of Chicago Municipal Tuberculosis Sanitarium, has favoured us with the following description of the means there employed for providing mass ultra-violet ray treatment for children.

In the interest of city children who suffer from lack of sunshine for a great part of the year, an apparatus for mass sunlight treatment was devised and installed by the writer in the Spalding School for Crippled Children. The apparatus consists of a sheet metal room, $8\frac{1}{2}$ feet wide, 20 feet long, and 9 feet 2 inches high. The "sun room" is approached at both ends by a ramp, 6 feet in length, graded $2\frac{1}{2}$ inches to the foot. The room is open at each end and a conveyer, on the endless chain principle, runs its entire length. The conveyer on which the children travel is, by means of the tachometer control, adjustable in speed, making it possible to traverse the chamber at speeds varying from forty-five seconds to four and one-half minutes. The children to be treated stand between two black lines about 9 inches apart, which run down the centre of the conveyer. On each side of the sun chamber, $2\frac{1}{2}$ feet from the floor, are placed three Uviarc lamps, making a total unit strength of six mercury quartz lamps. The lamps are supplied with special adjustable reflectors constructed to give an even light at all angles. Additional reflection is obtained from the aluminium painted walls. Fans promoting a breeze of approximately ten miles an hour have been installed on top of the chamber. A control board at one end of the mechanism allows individual control of each arc unit. Exposure is then controlled in three ways: (1) through the speed of the conveyer; (2) through the voltage control transmitted to the mercury arc; (3) through the curtailing of the number of arcs in use. The children, as they go through the apparatus, are at a distance of approximately forty inches from the lamps on each side. We have found that an exposure of forty-five seconds with the full battery of lamps at a voltage of 75 produces only a very slight erythema in approximately 50 per cent. of the children. Two hundred and fifty children can be handled in an hour. A full account of the apparatus appeared in *The Journal of the American Medical Association*, November 2, 1929, vol. 93, pp. 1377 and 1378. The accompanying illustrations indicate the chief features of the apparatus. (See Figs. 1 and 2.)

TUBERCULOSIS AND NATIONAL HEALTH.

The Annual Reports issued by the Ministry of Health are documents of the greatest value to all interested in the common health of the people of this country, and merit the serious study of those responsible in any way for the health and happiness of the nation. The recently issued

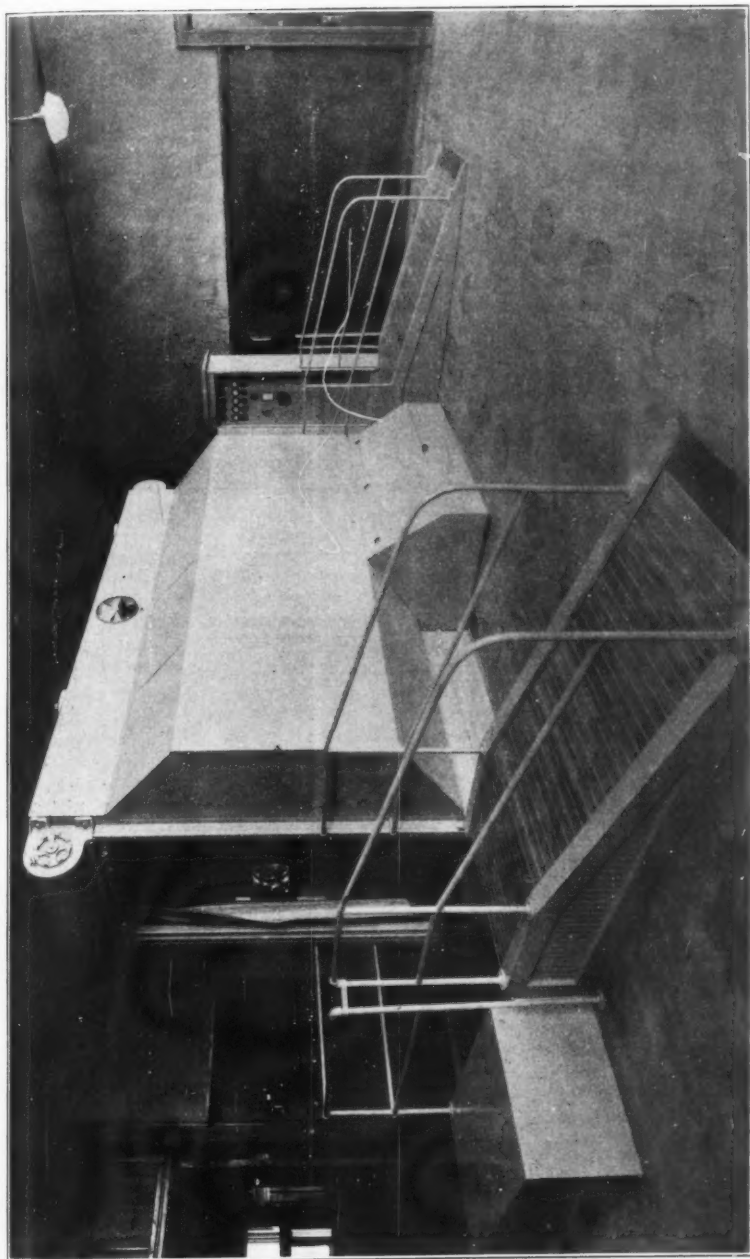


FIG. 1.—EXTERIOR OF APPARATUS FOR COLLECTIVE TREATMENT OF CHILDREN WITH ULTRA-VIOLET RAYS.

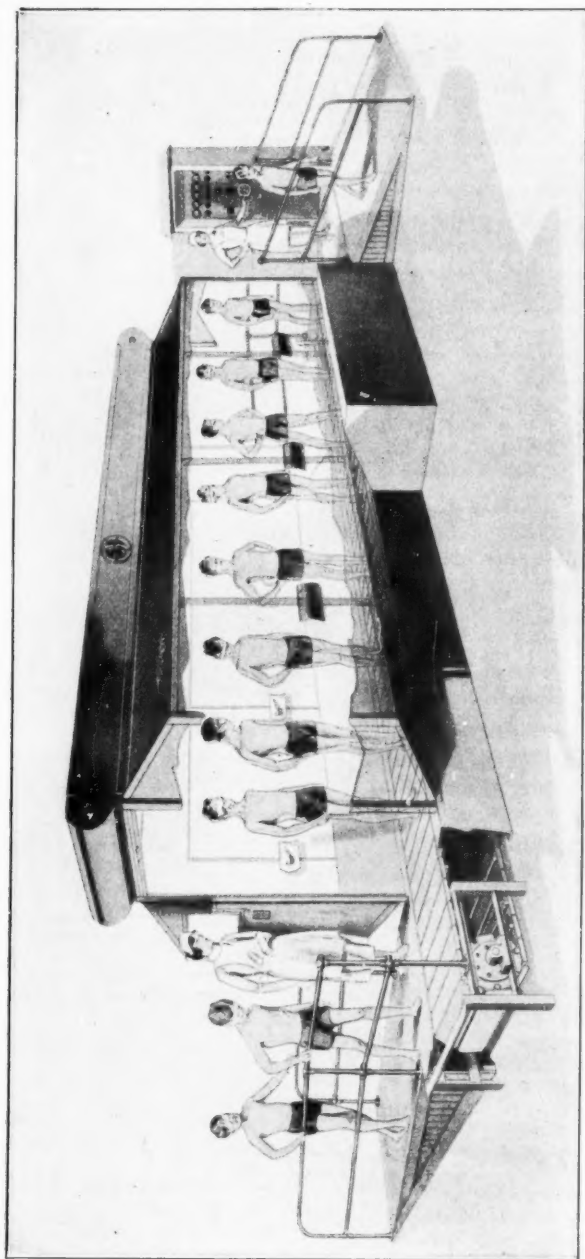


FIG. 2.—SECTION OF APPARATUS FOR ACTINOTHERAPY AT THE SPALDING SCHOOL FOR CRIPPLE CHILDREN, CHICAGO.

Eleventh Annual Report of the Ministry of Health is an impressive volume containing particulars regarding all the activities connected with this governmental department.¹ It is divided into five main sections: Public Health; Local Government and Local Finance; Administration of the Poor Law, etc.; National Health Insurance and Contributory Pensions; and Welsh Board of Health. Tuberculosis receives due consideration. The number of beds in institutions for its treatment has been increased by 289, and proposals have been approved for the provision by local authorities of about 1,350 additional beds. The average number of beds used in institutions in 1929-30 provided by local authorities was 387 in excess of the comparable figure for 1928-29, but the number of beds used by local authorities at institutions provided by voluntary bodies was 89 less than the average for 1928-29. On March 31, 1930, the number of tuberculosis officers working under the schemes of local authorities in England was 386, and the number of approved tuberculosis dispensaries was 461, exclusive of 97 outpatient departments of general hospitals and clinics approved for special forms of treatment. The Report presents a table indicating the various classes of approved residential institutions and the number of beds available in each class. The total number of institutions is 498; of these 209 are provided by local authorities, and 289 by voluntary bodies. The total number of beds amounts to 23,549, and of these 14,985 are provided by local authorities and 8,564 by voluntary bodies. The sanatoria (including consumptive hospitals) for pulmonary tuberculosis mainly or entirely number 198, and of these 142 are provided by local authorities and 56 by voluntary bodies. Increasing facilities for the treatment of non-pulmonary tuberculosis are being developed. Installations for treatment by artificial light have been approved at 43 residential tuberculosis institutions and at 25 tuberculosis dispensaries. Arrangements have also been approved for actinotherapy for certain classes of tuberculous cases at 44 other institutions, including 32 general hospitals. A section is devoted to the consideration of village settlements. The primary purpose of these centres is said to be "to provide remunerative employment, appropriate to their physical condition, for tuberculous persons who are no longer in need of active treatment for tuberculosis, but who could not effectively compete with or endure ordinary industrial conditions." It is further stated that "it is probable that the transference of poor law administration to the councils of counties and county boroughs, who are also responsible for the administration of schemes for the treatment of tuberculosis, will afford an appropriate opportunity for the practical investigation of this problem of finding employment for tuberculous persons." It would appear that our tuberculosis service costs the country for dispensary service £599,944, and for residential treatment £1,551,201. The gross expenditure of local authorities on their tuberculosis schemes in 1928-29 amounted to £3,269,634. The average number of occupied beds in institutions provided by local authorities was 13,742, and of beds maintained by those authorities in institutions provided by voluntary bodies was 5,951. The average cost per patient per week was 49s. 6½d. Such statistical returns indicate in a startling manner something of the

¹ "Eleventh Annual Report of the Ministry of Health, 1929-1930." Pp. xiv + 277. London: H.M. Stationery Office. 1930. Price 4s. 6d.

human waste and financial loss entailed by the prevalence of this preventable disease of tuberculosis.

Sir George Newman's Annual Reports regarding the state of the nation's health are documents of the highest value to public health, and deserve the thoughtful attention of all working for the increase of human health and happiness in this country. The Report recently published¹ consists of twelve sections, in which the following receive detailed consideration: The State of the Public Health in England, Maternity and Child Welfare, the Insurance Medical Service, the Local Government Act, 1929, General Epidemiology, Acute Rheumatism, Tuberculosis, Cancer, Venereal Diseases, the Relation of Food to Health and Disease, Medical Intelligence, Environmental Hygiene and International Health. The Report opens with a presentation of fundamental statistical data. The population of Great Britain in 1929 was 44,491,000. The average annual birth-rate per 1,000 living was 16·3; the average annual death-rate per 1,000 was 13·4. The deaths in England and Wales from tuberculosis of the respiratory system was 31,425, or 59 per 1,000 deaths from all causes; from other forms of tuberculosis 6,565, or 12 per 1,000 of deaths from all causes. The cases notified in 1929 of tuberculosis (respiratory system) numbered 52,634; of tuberculosis (other forms), 16,544. In the section devoted to the consideration of the new Local Government Act, 1929, the relation of the Act to tuberculosis is dealt with. Sir George Newman, in his paragraph on the social aspect of tuberculosis, says: "There are two social characteristics of tuberculosis which we do well to remember. First, it is a disease of 'poverty'—of social and physical poverty—and the long shadow of pauperism has lain heavily over the lot of the consumptive. As poverty all too often has been a predisposing factor in the conveyance and process of tuberculous infection, so the disease has brought unemployability and poverty in its train. Secondly, tuberculosis is the chief example of all the great social diseases which constitute the gravamen of the public health problem. Every slum dwelling may be a means of its infection, every overcrowded dwelling may be its home, every dark and ill-ventilated workshop may encourage it, every dirty trade may favour it, every mal-nourished child runs the gauntlet of its challenge, every tuberculous cow, like every ill-informed or careless consumptive, may be an agent in its spread—it is the black spectre in the social community. Only as we deal with these matters shall we defend ourselves as a community against tuberculosis. Its long history in this country is a tale of destruction. Every year there are not less than 70,000 new cases formally notified; every year there are 700 deaths a week in England and Wales attributed to this disease. Yet it is being steadily conquered. The death-rate from pulmonary tuberculosis in England and Wales has fallen from 3,189 per million in 1847 to 700 in 1928 and 738 in 1929. In a period of eighty years three-quarters of its burden of mortality has thus disappeared. Still more remarkable has been the decline of mortality in non-pulmonary tuberculosis, for since 1917 it has been halved." Sir George Newman discusses the factors which have been influential in bringing about the decline, and indicates the organization of remedial measures

¹ "On the State of the Public Health." Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1929. Pp. 247. London: H.M. Stationery Office. 1930. Price 3s. 6d.

under the new Act. In all counties and county boroughs effective co-ordination is now possible: (1) The medical officer of health is medical adviser both to the Public Health Committee and the Public Assistance Committee (which has taken the place of the former guardians), and so can co-ordinate the two services; (2) the *remedial* and *preventive* aspects of these services are brought together under a single health authority; (3) the dispensary (as diagnosis station and general clearing house) can be conjoined with the institutions; and (4) schemes for after-care and education are now applicable to all cases of tuberculosis within the area of the authority. In the special chapter devoted to tuberculosis Sir George Newman presents valuable statistical data, and deals at length with the question of notification; comments also appear regarding the returns under Memorandum 37 T. and Notification Returns for 1928. There is also a section on the treatment of pulmonary tuberculosis. The section on administrative procedure in relation to tuberculosis in children deserves special consideration, as there is uncertainty in some quarters as to this important matter. Many will be particularly interested in the pages in which the village settlement and its place in the tuberculosis scheme is considered, and the points which are set forth for consideration regarding the establishment of a village settlement. Here is the official conclusion: "The village settlement grafted on a hospital-sanatorium scheme is the most hopeful means for ensuring the after-care and well-being of a certain proportion of patients suffering from tuberculosis. It is to be anticipated that local authorities with the greater freedom which they will enjoy under the Local Government Act, 1929, will devote special attention to this important subject."

Sir George Newman's Annual Report as chief medical officer of the Board of Education is also a document of national importance. The recent issue, dealing especially with 1929, furnishes a complete account of the school medical service. The number of children inspected in the specified age groups during 1929 was 1,831,637, or 37.3 per cent. of those in average attendance. In addition, 905,690 for some special reason were examined. The total of 2,737,327 children passed under medical review represented 55.8 per cent. of the average attendance. The practice of medical inspection is now to some extent being extended to pre-school and post-school sections of the community. The Report indicates that in the course of routine inspections 509 children were discovered to have definite pulmonary tuberculosis, an incidence per 1,000 of 0.3; and 1,653 were "suspected cases," an incidence per 1,000 of 0.9. There were also 1,523 cases of non-pulmonary tuberculosis, an incidence of 0.8 per 1,000. The number of day open-air schools for the education of delicate and debilitated children is 70, having accommodation for 7,702. There are in addition 16 provided and 24 voluntary residential schools, with a total accommodation of 2,572. Local education authorities providing treatment by artificial light number 78, and treatment has been given at 59 school clinics and 26 hospitals. The Report contains a valuable section on The Teaching of Hygiene in Schools, and there is also a section on The School Dental Service. In the section in which are set forth Conclusions, it is stated that in 1929 88,524 children under fifteen died, and of these tuberculosis was the cause in 5 per cent. In the Appendix is a communication relating to infectious diseases and mor-

tality in school children; and here it is stated that during 1929 tuberculosis was responsible for the deaths of 2,065 children between the ages of five and fifteen years. Further, according to the returns furnished by local education authorities, there were at the end of the year 6,774 children of school age suffering from various forms of tuberculosis who were not attending school. Reference is made to Calmette's method of immunization in infancy by B.C.G. vaccine, and Grancher's method of endeavouring to remove the young child from sources of massive infection. We are interested to note that the section closes with the following quotation from an article by Mackenzie and Meikle, written in 1908, appearing in "Tuberculosis in Infancy and Childhood: Its Pathology, Prevention, and Treatment," and edited by the editor of this JOURNAL: "If medical inspection is seriously to affect the prevalence of tuberculosis, the examination of the child must lead back to the examination of his whole environment—food, sleep, cleansing, family history, occupations of parents, health of other members—and, in general, every circumstance that lessens the likeness of the home to a well-conducted sanatorium. If every case of malnutrition is followed back to its home environment the chances of infection will be diminished, and the medical inspector will know how to estimate the damage." Sir George Newman's Report is one which no medical adviser having to deal with children can afford to neglect.¹

Dr. F. N. Kay Menzies' Report as County Medical Officer of Health and School Medical Officer to the London County Council is always a document of special service and interest to those engaged in activities making for human betterment in the London area. The recently issued Report dealing with Public Health is of exceptional interest and value, and merits thorough study.² The estimated population of the L.C.C. area is 4,430,000, including 12,100 non-civilians. The births during 1929 numbered 70,089, a birthrate of 15.8 per thousand. The deaths in the civil population numbered 62,889, a deathrate of 14.2 per thousand. The infant mortality per thousand births was 71. Statistical returns are provided regarding infectious and other diseases. The information relating to tuberculosis will be of special interest to readers of this JOURNAL. The deaths from tuberculosis of the respiratory system in London during 1929 number 4,230, a deathrate of 0.96 per thousand living, the corresponding figures for 1928 being 3,985 and 0.89 respectively. There were 584 deaths from other forms of tuberculosis. The number of primary notifications in metropolitan boroughs during 1929 after correction was estimated as 8,732, the corresponding figure for 1928 being 8,586. A section of special interest is that which deals with tuberculosis occurring in mental hospital patients. The deaths from pulmonary tuberculosis among male patients are shown to be about two-and-a-half times as great as the normal, while among female patients the rate is nearly seven times that of the corresponding London population. There is an informing illustrated section on open-air education. There are eight day open-air

¹ "The Health of the School Child." Pp. 152. London: H.M. Stationery Office, Adastral House, Kingsway, W.C. 2. 1930. Price 2s.

² Annual Report of the London County Council for 1929, Vol. III: Public Health. Pp. 189. Published by the London County Council, and can be obtained from P. S. King and Son, Ltd., 14, Great Smith Street, Victoria Street Westminster, S.W. 1. 1930. Price 2s. 6d.

schools (non-tuberculous) with accommodation for 1,360 children and seven day open-air schools (tuberculous) accommodating 540 children. There are also five country and seaside convalescent camp schools accommodating 484 children for short periods, through which 4,600 children pass annually, and 177 open-air classes in playgrounds and parks, providing for upwards of 6,000 children. With regard to the treatment of tuberculous cases by artificial light the view is expressed that the best results are obtained only when the form of treatment is given in conjunction with residential treatment at institutions in the country.

TUBERCULOSIS IN MAN AND ANIMALS.

The Medical Research Council has recently issued an elaborate account of Dr. H. H. Scott's comparative studies of tuberculous disease in man and other animals.¹ It is a valuable monograph, which merits the consideration of all interested in the tuberculosis problem. The author's material has been drawn from the results of post-mortem examinations of 300 fatal cases of tuberculosis among Chinese of the labouring class in Hong Kong, and also from examinations of a series of wild animals dying of tuberculosis in captivity in the Zoological Gardens, London. The preface to this illuminating work contains the following suggestive statement: "There is a close analogy to be drawn between tuberculosis in wild animals living in captivity and tuberculosis in human races that have only recently been brought into contact with civilization. In civilized communities and among domestic animals tuberculosis infection is widespread, and a degree of acquired resistance or immunity limits and modifies the incidence and effects of the disease. Isolated primitive races appear to be quite free from the infection, nor is it known to occur among wild animals in the natural state. When, however, these human races or these wild animals are exposed to infection they offer little resistance. The disease has a high incidence among them, and in suitable conditions may spread rapidly in epidemic form. In the individual it tends to run a rapid course towards death. These facts, having regard to the increasing contacts of civilization with native races, present some of the gravest and most urgent problems in the administration of the tropical territories of the Empire." Dr. Scott's work is mainly a study of comparative pathology. The work is divided into seven parts: Tuberculosis in Wild Animals in Captivity; the Distribution of Tuberculous Lesions in Man and other Primates, with an Account of the Lymphatic Glands and Vessels of the Thorax and Upper Abdomen; Tuberculosis in Man; Tuberculosis in Wild Birds in Captivity; Tuberculosis in Reptiles; Tuberculosis and Mycosis in Birds; and Tuberculosis and Mycosis in Mammals. Dr. Scott has gathered and set forth in clear words effectively presented in well-arranged sections a vast amount of valuable material which certainly adds to our knowledge regarding the important questions of the portals of tuberculosis entry and the paths of infection with the body, and his studies shed new light on the relations existing between the distribution of tuberculous lesions and the

¹ "Tuberculosis in Man and Lower Animals," by H. H. Scott. Special Report Series No. 149 of the Medical Research Council, National Institute for Medical Research, Hampstead, N.W. 3. Pp. 270. London: H.M. Stationery Office, Adastral House, Kingsway, W.C. 2. 1930. Price 4s.

anatomical structures of the different animals affected. The data collected from post-mortem observations are set forth in tables. A short list of bibliographical references is provided, but there is no index.

NOTES AND RECORDS.

The Ministry of Health has issued a new Memorandum (37/T Revised) relating to Annual Returns to be furnished by the Chief (Administrative) Tuberculosis Officers of Local Authorities and to Records kept by Tuberculosis Officers and by Medical Officers of Residential Institutions approved by the Minister of Health for the Treatment of Tuberculosis.

The Ministry of Health has issued as Memorandum 122 D/T a 21-page Tabular Statement regarding the Cost incurred at Residential Institutions for the Treatment of Tuberculosis.

The Studies from the Rockefeller Institute for Medical Research, Avenue A and 66th Street, New York City, are known and appreciated by scientific workers in all parts of the world. The latest volume of the series is No. 71, and consists of 606 pages of reprints.

"The Effect on Food of Fumigation with Hydrogen Cyanide," by G. W. Mower-Williams, O.B.E., M.C., M.A., Ph.D., F.I.C., is No. 60 of the Reports on Public Health and Medical Subjects issued by the Ministry of Health and published by H.M. Stationery Office (price 6d.).

The Hampstead Borough Tuberculosis Care Committee, the offices of which are at 73, Dynham Road, N.W. 6, have issued their Annual Report under the striking title of "The Care of the Consumptive (how much do you care?) and the Control of Consumption." It shows how much valuable service may be rendered in social and economic welfare of needy tuberculous subjects.

Scott and Bowne, Ltd., 10-11, Stonecutter Street, E.C. 4, of Scott's Emulsion fame, have provided a neat, light, attractive, well-bound pocket size Medical Diary and Emergency Notebook, printed on good thin paper with gilt edging, specially prepared for the use of doctors: a copy will be sent free of charge to any of our medical readers who have not already received one, on forwarding a professional card to the above address. In addition to the spaces for daily entries and other notes, there is a collection of serviceable medical and other practical data suitably arranged for ready reference.

An International Exhibition in connection with the tercentenary celebration of the first recognized use of cinchona by Europeans is available at the Wellcome Historical Medical Museum, 54, Wigmore Street, Cavendish Square, W. 1, and will remain open for inspection until February. The founder and director of the museum, Dr. Henry S. Wellcome, in conjunction with Mr. L. W. G. Malcolm, the conservator, has issued through the Wellcome Foundation, Ltd., a handsome souvenir volume, giving a list of exhibits and much valuable information. The exhibition illustrates the historical development from the time of the introduction of the cinchona bark until today, when experimental researches regarding its active principles are still being pursued.